D R A F T D O C U M E N T

Certified Permitting Professional Program Reference Manual

Engineering and Compliance

May 2002

D R A F T D O C U M E N T

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

CERTIFIED PERMITTING PROFESSIONAL PROGRAM

REFERENCE MANUAL

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INTRODUCTION

1-1 BACKGROUND

Background On AQMD's Permitting Program

The AQMD's permitting program has been established to implement the requirements of the federal and state Clean Air Act (CAA), the Air Quality Management Plan (AQMP) and air quality rules and regulations by specifying operating and compliance requirements for stationary sources that emit air contaminants. Since the South Coast Air Basin (SOCAB) is the only area in the nation that is designated as "extreme non-attainment" for ozone, as well as "serious non-attainment" for PM10 and CO, it has the lowest major source threshold (i.e. a source with a potential to emit 10 tons per year or more of VOCs or NOx) in the nation. In order to comply with federal and state CAA requirements, all major and non-major sources in SOCAB are subject to "no net emission increase" and BACT and/or LAER, source-specific, prohibitory and toxics rules (federal, state and local) as well as other applicable requirements.

In the last decade the AQMD permit program has been subjected to a significant amount of changes. In 1993 the AQMD adopted the first market incentive program of it's kind in the nation, the RECLAIM program. RECLAIM is a cap and trade program with declining facility caps. Therefore, AQMD created consolidated facility permits for about 380 of the largest NOx and SOx emitting facilities in south coast subject to RECLAIM. The federal CAA amendments of 1990 also created a number of new permitting requirements, such as the Acid Rain Program (Title IV), Operating Permit Program (Title V), and Hazardous Air Pollutant/Toxics Program (Title III). In order to address air quality improvements, economic growth and environmental justice, the AQMD has made major amendments to the New Source Review (NSR) Regulations for both non-attainment permitting NSR (Regulations XIII and XX) and Attainment Permitting (PSD Regulation XVII), and has adopted toxics regulations for new and existing sources (Rules 1401 and 1402). In addition, the public disclosure and public right to know laws have resulted in new requirements under CEQA, public noticing and public participation.

Permitting Process

The most common types of applications filed at AQMD are for Permits to Construct (PCs) or Permits to Operate (POs). Prior to installation of new or relocated equipment, or prior to modification of an existing equipment,

the operator of the equipment is required to obtain a PC from the AQMD. Once a piece of equipment is installed, modified and/or operated, AQMD processes the application for a PO. In cases where equipment is installed without a prior PC, the AQMD also processes the application directly for a PO. In cases of off the shelf type equipment, the AQMD issues a one-step PC/PO.

Permit Types

In addition to PCs and POs the AQMD utilizes the application and permitting system for other processes. The following is a summary of the types of applications processed by AQMD:

- Permits to Construct – are required for a new or relocated equipment as well as alteration (both physical modification and change of operating conditions) of existing equipment. These applications always receive a high priority for processing.
- Permits to Operate – are required for equipment that is installed, and/or is operated with or without a prior PC (a prior PC or in cases where no prior PC was issued, the application act as a temporary PO until a final PO is processed).
- Change of Conditions
- Alteration/Modification
- Change of Operator.
- Plans – are required under some of AQMD rules and regulations (i.e. RECLAIM Rule 2009, Excavations Rule 1150, etc.) for compliance demonstrations and are subject to AQMD approval.
- Emission Reduction Credits (ERCs) – are for issuance of ERCs generated due to equipment shut downs or over controls.
- Title V – are required for initial issuance or subsequent revisions of Title V facility permits.

Permitting Program

The AQMD administers a number of permit programs such as:

- RECLAIM
- Title V
- Conventional (Non-RECLAIM/Non-Title V)

- Acid Rain

- Registration/Certification
- Streamlined Standard Permits.

Prior to issuance of a permit, the AQMD has to determine whether or not the equipment can operate in compliance with all applicable rules and regulations, and impose operating conditions to ensure that the equipment operation will continue to stay in compliance. The rules and regulations that are evaluated by the AQMD for a permit application can be broadly categorized into categories listed below:

- Prohibitory Rules – (Opacity – Rule 401, Nuisance – Rule 402, etc.)

- Federal Source Specific Requirements – New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and Acid Rain (Title IV), etc.

- Local Source Specific Rules (e.g., Metal coating operations – Rule 1107, Wood coating operations – Rule 1136, etc.)

- RECLAIM Rules – Regulation XX

- Title V Rules – Regulation XXX

- New Source Review Rules – Regulations XIII and XX (Non-Attainment) and XVII (Attainment/PSD)

- Toxics Rules – (New Source Review) Rules 1401 and (Existing Sources Review) Rule 1402

- Public Notice – Rule 212 and Regulation XXX

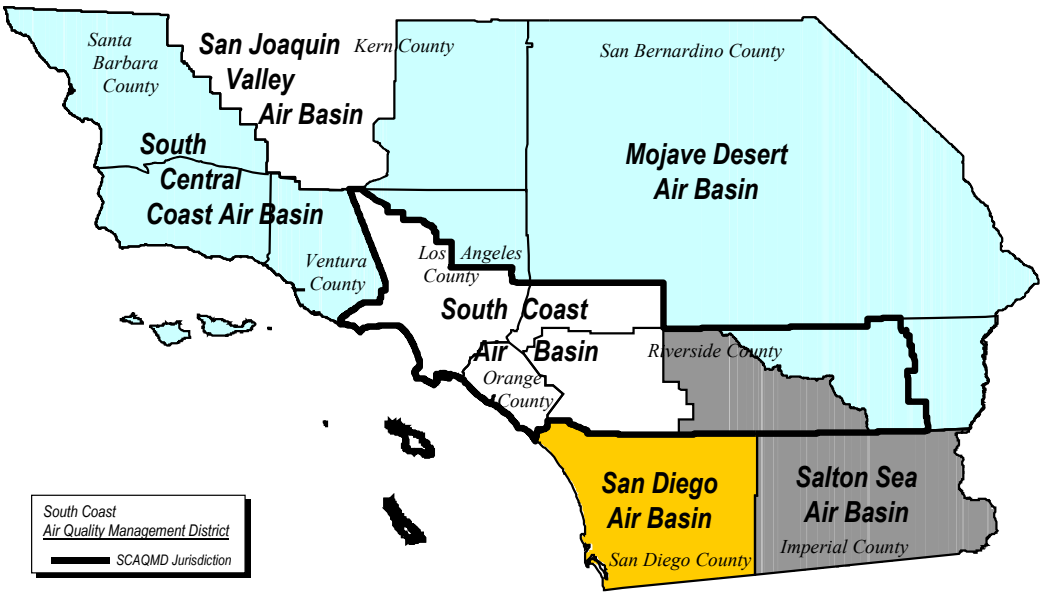
All applications for permit to construct and permit to operate are evaluated for compliance with the prohibitory rules, one or more source specific rules, new source review rules for criteria and toxic air contaminants and other applicable rules and regulations.

In addition, all applications have to meet the requirements for Public Notice, if applicable. Public notices are required for facilities that have

risks or emissions that exceed the specified thresholds or for equipment located within 1,000 feet of a school. All such public notices are distributed to the communities near the project and parents of children attending nearby schools and are subject to a 30-day public comment period.

Public notices are also required prior to the issuance of the Initial, Revised and Renewed Title V Permits. For Title V permits, in addition to the 30-day public comment period there is also a requirement for a 45-day review period by EPA. Permits can only be issued after the public notice period is concluded and after taking into consideration any comments received during the public and EPA comment periods. In some cases AQMD staff has to hold an evening community meeting or attend city council meetings to discuss the project impacts as a result of public notices. In worst cases, incompatible zoning decisions are debated at these meetings.

The South Coast Air Quality Management District (AQMD) is the air pollution control agency for the four-county region which includes the non-desert portion of Los Angeles, Riverside and San Bernardino Counties and all of Orange County. See map below.



The region is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. AQMD is responsible for controlling emissions from stationary sources of air pollution. Although AQMD does not directly control pollution from motor vehicles, the AQMD does have transportation-related programs aimed primarily at reducing the number of cars on the road and promoting the use of cleaner fuels and vehicles. AQMD also sponsors programs to reduce the number of smoking trucks, buses and cars. We do this in cooperation with the California Highway Patrol and the thousands of citizens who call our toll-free 1-800-CUT-SMOG toll free line to report smoking vehicles.

The topography and climate of Southern California combine to make the region an area of high air pollution potential, and constrain AQMDs efforts to achieve clean air. Also, the agency has to consider the economic impacts of regulating air pollution.

Solving the air quality problem in Southern California represents a considerable challenge. The solutions lie in implementing technological and innovative changes that provide for achieving clean air goals while maintaining a healthy economy.

The AQMD embarked on a series of “new directions” programs, in 1992, to clean the air in more efficient ways with the help of the business community. One of these programs is the Certified Permitting Professional Program.

1-2 CERTIFIED PERMITTING PROFESSIONAL PROGRAM

(Information on AQMD's CPP Program can be found on AQMD's website at www.aqmd.gov/permit/cppbkg.htm
The AQMD certifies CPPs in permit preparation. Individuals who successfully complete the CPP examination administered by the AQMD earn the title "Certified Permitting Professional" (CPP) and is issued a CPP license. The CPP license must be renewed annually to maintain the license. The examination for the certification of the CPP is normally held once a year. More details on the CPP Program is on AQMD's website.

Applications submitted by a CPP are expected to include complete equipment descriptions, emission calculations, rule compliance assessment, an evaluation of toxic effects, where necessary, emission

offset requirements, and Best Available Control Technology (BACT) for the proposed project. Complete and thorough applications avoid permitting delays

The California Health and Safety Code, Section 42300.2 address specifically the requirements to certify private environmental professionals to prepare permit applications. It also addresses the requirements for the de-certification of a CPP.

These application packages, submitted by certified permitting professionals, are assumed to be complete and in compliance with permitting requirements. This helps expedite the engineering review process and reduce turn-around time for issuing Permit to Construct or Permit to Operate.

The goals of the Certified Permitting Professional Program are to provide engineers and environmental professionals with:

- the necessary information for submitting a complete permit application package;
- the tools needed for calculating air pollutant emissions based on the design and operating parameters of the equipment or process;
- the knowledge of how to apply AQMD rules and regulations; and
- the understanding of how enforceable permit conditions are written to ensure that equipment operates in compliance with all applicable rules and regulations.

In order to accomplish these goals, emphasis will be placed on the following subject areas:

- permit requirements;
- Completing applications forms, determining the correct fees and completing the California Environmental Quality ACT (CEQA) forms;
- relevant additional information;

- determination of permit fees;
- calculation of criteria and toxic air pollutant emissions;
- AQMD rules and regulations; and
- permit conditions.

Every Certified Permitting Professional is expected to:

- be able to submit complete application packages;
- maintain the certification by renewing their license annually;
- be familiar with all new and amended AQMD rules;
- not knowingly or negligently submit false data as part of a complete and preprocessed application.

In addition to the above responsibilities, a CPP should be able to: describe the equipment or process; determine how equipment or process design and operation parameters may be set to minimize emissions; estimate actual and maximum emissions; and ensure that the process or equipment operates in compliance with AQMD, state, and federal air pollution control laws, rules, regulations or orders.

It is envisioned that all permit applications submitted by CPPs':

- should require minimum review for completeness check(see attached checklist for CPP Application submittal);
- should be reviewed by the permit processing unit in an expedited manner since the application package is complete; and
- should be issued an expedited permit to construct except in cases when CEQA, public notice, case-by-case BACT determination, or an emission reduction certificate is needed.

The CPPs are also provided data access to AQMD database for information on New Source Review (NSR) and Automated Equipment Inventory Systems (AEIS) for the facilities for which they are preparing

applications. The type of information that can be acquired from this system includes:

- the status of permit applications;
- the list of equipment located at a facility; and
- the actual and maximum mass emission rates associated with the existing equipment at the facility (NSR Balance).

To use this system, the CPP must have a valid password and be a current Certified Permitting Professional. The CPPs' will only be able to access data for companies that have provided written authorization to the AQMD. The letter must be in the company's letterhead and signed by an authorized person. It should specify the facility ID, the CPP name and ID of the CPP being granted authorization.

CHAPTER II

PERMIT REQUIREMENTS/CEQA AND REGULATION II

2-1 INTRODUCTION

Air contaminants released from combustion equipment stacks, storage tanks, automobile tail pipes, or any other stationary or mobile equipment have a high potential to remain in the Air Basin because of the topographic features and climatic conditions of Southern California. These air contaminants include, but are not limited to, VOC, NO_x, SO_x, CO, PM_{10}, and toxic air contaminants. VOC, NO_x, and SO_x, sometimes called precursor substances, form or contribute to the formation of secondary air pollutants. The secondary pollutants resulting from these precursor substances are shown in Table 2-1.

TABLE 2-1: SECONDARY POLLUTANTS

Precursor	Secondary Pollutants
Volatile Organic Compounds	Photochemical oxidant (ozone) the organic fraction of suspended particulate matter
Nitrogen Oxides (NO_x)	Photochemical oxidant (ozone) The nitrate fraction of suspended particulate matter nitrogen dioxide ($NO_{2)}$
Sulfur Oxides (SO_x)	The sulfate fraction of suspended particulate matter sulfur dioxide (SO_2) sulfate (SO_4)

Criteria air pollutants are pollutants for which the federal government has established national ambient air quality standards. Sulfur Dioxide (SO_2), lead, ozone (smog), NO_2, CO, and PM_{10} are examples of criteria air pollutants. Non-criteria air pollutants are pollutants for which the federal or state government has not established ambient air quality standards.

VOC, NO_x, SO_x, and their secondary pollutants, as well as CO and PM_{10}, damage property and vegetation, and cause serious health problems in humans and animals. Benzene and other carcinogenic air contaminants

cause cancer in humans and animals. Table 2-2 shows the effect of criteria air pollutants on humans, animals, and vegetation.

TABLE 2-2: EFFECT OF CRITERIA POLLUTANTS

AIR POLLUTANT	RELEVANT EFFECTS
Ozone	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals. (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage.
Carbon Monoxide	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses.
Nitrogen Dioxide	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	(a) Bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children.
Sulfate	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage.
Lead	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Visibility impairment on days when relative humidity is less than 70 percent

Development of Federal, State and AQMD Regulations

Federal, state, and local governments are responsible for protecting citizens' health and welfare. Prior to 1955, states and local governments have shown their willingness to prevent air pollution by enacting air pollution regulations. During this period, the federal government did not pass laws to control air pollution, at least not until July 14, 1955, when the Congress passed the first federal air pollution law called the "Air Pollution Control Act" (Act). The Act authorized the Secretary of Health, Education, and Welfare (HEW) and Surgeon General of the Public Health Service to collect data, and to devise and develop procedures for the control and abatement of air pollution. In addition, the Act approved grants to public agencies to develop and implement research programs directed toward the abatement of air pollution. The Act recognized that states and local governments have the responsibility to prevent air pollution within their boundaries.

Congress approved two extension bills, one in 1959 and the other in 1960. The latter bill charged the Surgeon General of the Public Health Service with the task of investigating how emissions of air contaminants from the exhaust of motor vehicles affect human health. The Congress, in 1962, amended the Air Pollution Control Act primarily to "make permanent the requirement that the Surgeon General conduct studies relating to motor vehicle exhaust."

On December 17, 1963, Congress took a major step toward helping states and local governments to prevent air pollution problems by passing the original Clean Air Act (CAA). This Act was different from previous Acts because it provided enforcement action in cases where air polluting activities caused pollution problems that had negative effects on the health and welfare of individuals, not only in the state in which the polluting activities were located but in other states, as well. To ensure that air pollution problems are mitigated, Congress granted the Secretary of HEW the authority to request federal court action against polluters:

(i) upon a state's request in cases where pollution problems are confined to the state in which the problems originate or

(ii) without a state's request in cases where the effects of air pollution are felt beyond the state in which the air pollution problems originate.

However, the authority was only to be used as a last resort, that is, only after abatement of air pollution could not be secured through an administrative procedure that includes a conference called by the Secretary of HEW or public hearings before a hearing board appointed by the Secretary. Even though the enforcement action is characterized as a "very weak conference procedure", it accomplished two important things: (i) it reaffirmed state and local governments' primary responsibility, which is to ensure that the air quality within their boundaries is safe for public health and welfare, and (ii) most importantly, it provided a remedy for states other than the state in which pollution problems originate.

Several bills dealing with air quality issues were approved by Congress between 1965 and 1977. The Act of 1966, and those preceding it, showed the attempt by Congress to lessen the problems associated with air pollution; nonetheless, the problems steadily worsened. On January 30, 1967, President Johnson argued for clean air and urged the Congress to pass new legislation directed against air pollution problems. The magnitude and seriousness of these problems rekindled the willingness of the legislators to increase federal participation in attacking air pollution problems by enacting more stringent legislation. On November 21, 1967, Congress passed the Air Quality Act of 1967. The Act retained the major activities authorized under previous CAAs for the Secretary of HEW and also clearly defined the responsibilities of state governments and the Secretary of HEW. The Act required state governments to:

(i) divide their state into air quality control regions in consultation with the federal government;

(ii) establish air quality standards for each designated air quality control region; and

(iii) develop and implement a "State Implementation Plan" to ensure that those air quality standards are achieved.

It also required the Secretary of HEW to:

(i) publish information on air quality criteria and available control technology to assist state governments to establish their regional air quality standards;

(ii) determine whether state-established air quality standards, if approved, will meet the intent of the bill; and

(iii) establish and implement air quality standards for states that either do not establish any standards or their established standards are found not to be consistent with the purpose of the bill.

The Air Quality Act of 1967 opened a new chapter in the control of air pollution. The Act addressed many pressing air pollution issues and presented ways to mitigate air pollution problems. However, air pollution problems continued to increase and are still caused a tremendous strain on the public and on the economy. The pollution problems persisted because:

(i) previous air pollution control laws were not aggressively enforced at the federal level,

(ii) there was no federal regulatory standard which equally applied to all states,

(iii) federal, state, and local governments lacked sufficient funds, and

(iv) procedures for implementing the Act of 1967 were complex and time-consuming.

By the early 1970's, citizens were becoming more aware of how air pollution affects their health, well-being, and welfare. Even the Congress unanimously agreed that the Act of 1970 should "speed up, expand, and intensify the war against air pollution in the United States with a view to assuring that the air we breathe throughout the Nation is wholesome once again." The uneasiness on the part of the public and Congress over the harmful effects of air pollution gave birth to the CAA of 1970. None of the previous bills revealed the urgency and the commitment of the federal government to seriously address the problem of air pollution as the Clean Air Act Amendment of 1970. This Act is often considered to be the original CAA, even though it amended the Clean Air Act of 1963, because it defined the beginning of a new age in air pollution control. The Act addressed limitations of previous Acts by establishing new provisions, strengthening existing provisions, and giving the Secretary of HEW more authority to enforce its provisions. For example:

(i) Rather than allowing states to adopt ambient air quality standards on the basis of air quality criteria document presented by the Secretary of HEW, it authorized the Secretary of HEW to establish national ambient air quality standards for criteria pollutants with the caveat that states be allowed to set their own ambient air quality standards as long as they are not less stringent than federal standards. Table 2-3 presents the National and State Ambient Air Quality standards;

(ii) The process of establishing air quality control regions (AQCR) under the previous Act (1967) was based on "jurisdictional boundaries, urban-industrial concentration, and any other factors which will affect the adequacy of regional control efforts." This process was time-consuming, thereby resulting in the creation of only a few non-contiguous AQCR and the deferment of enforcement activities. The legislators, in the Act of 1970, created contiguous AQCR without any government bureaucracy by declaring each state to be an air quality region, thereby enabling enforcement activities to be implemented expeditiously throughout the entire country;

(iii) This Act gave the Secretary of HEW the authority to inspect any facility to ensure that the State Implementation Plan and any mitigating measures are complied with; and

(iv) State governments were responsible for establishing emission standards for new stationary sources under previous Acts. These practices allowed state governments to attract facilities on the basis of which state had the least stringent air quality standards. The Act of 1970 eradicated these practices by giving the Secretary of HEW the authority to establish emission standards (New Source Performance Standards) for new stationary sources or for modification or reconstruction of existing major sources.

TABLE 2-3: NATIONAL AND STATE AMBIENT AIR QUALITY STANDARDS

Criteria Air Pollutants	California State Ambient Air Quality Standards (Concentration/Averaging Time)	National Ambient Air Quality Standards (Concentration/Averaging Time) Primary	Secondary
Ozone	0.09 ppm, 1-hr avg.	0.12 ppm, 1-hr avg.	0.12 ppm, 1-hr avg.
Carbon Monoxide	9 ppm, 8-hr avg. 20 ppm, 1-hr avg.	9 ppm, 8-hr avg. 35 ppm, 1-hr avg.	None
Nitrogen Dioxide	0.25 ppm, 1-hr avg.	0.053 ppm, ann. arithmetic mean	0.053 ppm, ann. arithmetic mean
Sulfur Dioxide	0.05 ppm, 24-hr avg. >= with ozone >= 0.10 ppm, 1-hr avg. or TSP >= 100 □g/m^3, 24-hr avg. 0.25 ppm, 1-hr avg. >	0.03 ppm, ann. arithmetic mean 0.14 ppm, Max. 24-hr	0.05 ppm, Max 3-hr
Suspended Particulate Matter (PM_{10})	30 □g/m^3, annual geometric mean 50 □g/m^3, 24-hr avg.	50 □g/m^3, annual arithmetic mean 150 □g/m^3, 24-hr avg.	50 □g/m^3, annual arithmetic mean 150 □g/m^3, 24-hr avg.
Sulfate	25 □g/m^3, 24-hr avg. >=	None	None
Lead	1.5 □g/m^3, 30-day avg. >=	1.5 □g/m^3, calendar quarter	1.5 □g/m^3, calendar quarter
Visibility Reducing Particles	In sufficient amount to reduce the visual range to less than 10 miles at relative humidity less than 70%, 8-hr average (9 a.m.-5 p.m.)	None	None

The United States Environmental Protection Agency (EPA) was officially created on September 9, 1970 as the agency responsible for ensuring that provisions of the CAA are enforced. The legislators gave EPA the authority to set standards, such as federal ambient air quality standards, and make certain that states meet, maintain, and enforce the standards.

The CAA was amended in 1973, 1977, and 1990. Table 2-4 shows the evolution of federal clean air legislation from 1955 until 1990.

TABLE 2-4: FEDERAL AIR POLLUTION LEGISLATION

Legislation	Public Law	Date	Statutory Designation[a]
Air Pollution Control Act	84-159	6/14/55	69 Stat 3221
Air Pollution Control Act Extension	86-365	9/22/59	73 Stat 646
Motor Vehicle Exhaust Study Act of 1960	86-493	6/8/60	74 Stat 162
Air Pollution Control Act	87-761	10/9/62	76 Stat 760
Clean Air Act of 1963	88-206	12/17/63	77 Stat 392
Motor Vehicle Air Pollution Control Act	89-272	10/20/65	79 Stat 992
Clean Air Act of 1966	89-675	10/15/66	80 Stat 954
Air Quality Act of 1967	90-148	11/21/67	81 Stat 485
Clean Air Act Amendments of 1970[b] (with technical amendments in The Comprehensive Health Manpower Training Act of 1971 - PL91-604)	91-604	12/31/70	84 Stat 1676
Clean Air Act Extension	93-15	4/9/73	87 Stat 11
Energy Supply and Environmental Coordination Act of 1974 (ESECA)	93-319	6/24/74	88 Stat 246
Clean Air Act Amendments of 1977[c] (with technical amendments in The Safe Drinking Water Act of 1977-PL-95-190)	95-95	8/7/77	91 Stat 685
Clean Air Act of 1990[d]	101-549	11/15/90	

[a] Codified at 42 USC 1857 et. seq., later changed to 42 USC 7401 et. seq.

[b] Often referred to as the Clean Air Act - CAA

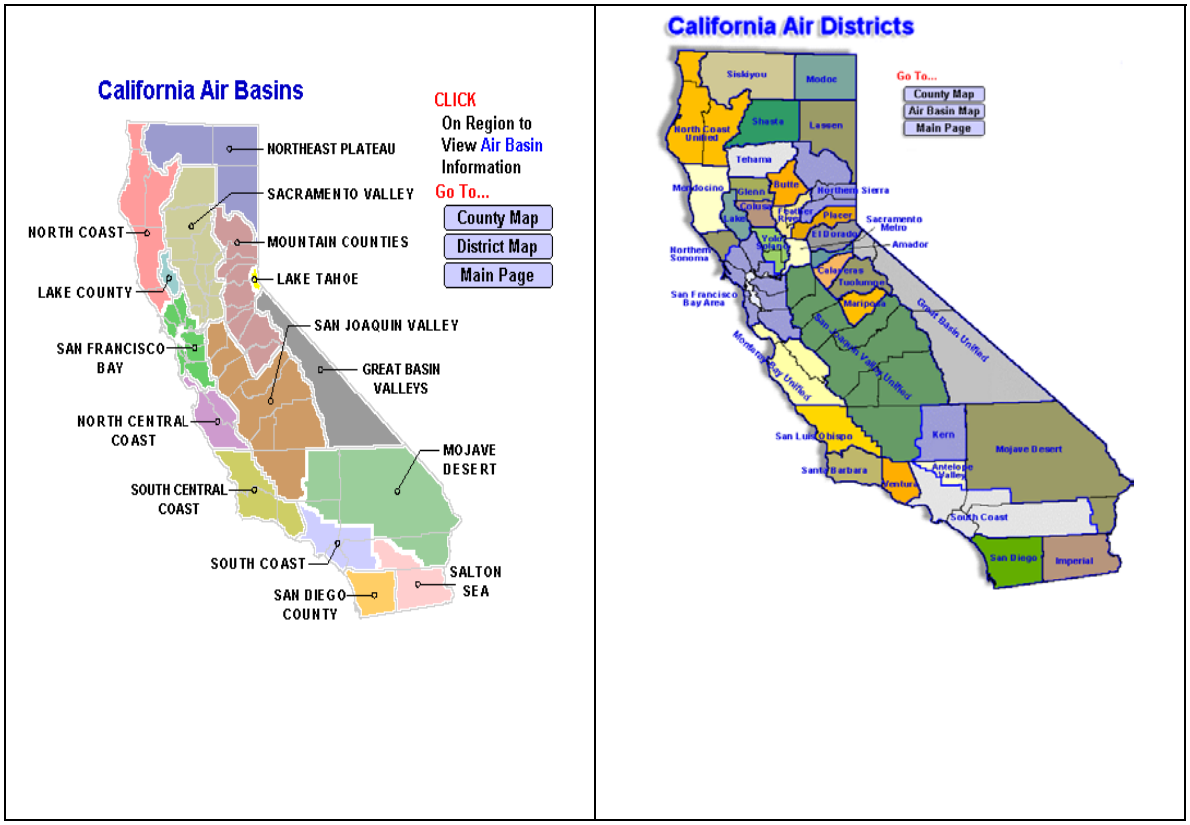
[b] Often referred to as the Clean Air Act Amendments - CAA

[d] Not included in the original table as referenced in the body of the text.

The California Legislature is the "legislative body" responsible for preventing air pollution problems in the state. The goals of this body are to ensure that the health, safety, welfare, and the general well-being of the people of the State of California are protected from air pollution. To accomplish this, the legislators created the State Air Resources Board (ARB) and declared that the state, regional, and local agencies have the primary responsibility, through coordinated efforts, to protect the people of California from any air pollution problems. For instance, ARB is charged with the task of: (i) dividing our state into air basins "based on similar meteorological and geographical conditions"; (ii) establishing state ambient

air quality standards for each air basin on the basis of public health, safety, and welfare, (iii) determining the causes and prevention of air pollution; (iv) monitoring air pollution from vehicular sources; (v) preparing the State Implementation Plan required by CAA; (vi) coordinating all the activities of regional and local agencies directed toward complying with CAA; and (vii) ensuring that regional and local agencies present, adopt, and enforce programs necessary for complying with state and national ambient air quality standards.

The ARB divided the state into different air basins and air districts (see map showing the air basin and air district boundaries). The geographical boundaries of each air Basin are described in Sections 60100 through 60113 of Title 17 of the California Code of Regulations.



Our Basin is the South Coast Air Basin, and it includes the non-desert portion of the Los Angeles, Riverside, and San Bernardino Counties and Orange County. The South Coast Air Basin (Basin) is in currently in compliance with three of the criteria pollutants listed under the federal or state ambient air quality standards, as listed in Table 2-5. Air pollution problems in the Basin are so severe that the California Legislature created the SCAQMD in 1977 as the public agency responsible for ensuring that

the Basin complies with state and federal ambient air quality standards by controlling air pollution from all non-vehicular sources.

TABLE 2-5: SOUTH COAST AIR BASIN DESIGNATION FOR AIR CONTAMINANTS

Criteria Air Pollutant	South Coast Air Basin Area Designation			
	Orange County	Los Angeles County	Riverside County	San Bernardino County
Ozone	Non-Attainment	Non-Attainment	Non-Attainment	Non-Attainment
Carbon Monoxide	Non-Attainment	Non-Attainment	Non-Attainment	Attainment
Nitrogen Dioxide	**Attainment**	**Attainment**	**Attainment**	**Attainment**
Sulfur Dioxide	**Attainment**	**Attainment**	**Attainment**	**Attainment**
Suspended Particulate Matter (PM_{10})	Non-Attainment	Non-Attainment	Non-Attainment	Non-Attainment
Sulfate	Non-Attainment	Non-Attainment	Non-Attainment	Non-Attainment
Lead	**Attainment**	**Attainment**	**Attainment**	**Attainment**
Hydrogen Sulfide	Unclassified	Unclassified	Unclassified	Unclassified
Visibility Reducing Particles	Unclassified	Unclassified	Unclassified	Unclassified

Updated recorded ambient air quality data can be obtained from http://www.aqmd.gov/news1/2000_AQ_card.pdf

California Health & Safety Code Section 42300 establishes the authority of AQMD (SCAQMD) to establish, by regulation, a permit system. A permit is a written authorization granted by the Executive Officer that allows an applicant/operator to build, erect, alter, replace, operate, or use any article, machine, equipment, or other devices which may cause the issuance, or control, of air contaminants.

- There are generally two types of written permits: (i) Permit to Construct, and (ii) Permit to Operate. A Permit to Construct allows the applicant/operator to build, erect, install, alter or replace emission or control equipment. A Permit to Operate

enables the applicant/operator to operate emission or control equipment. A permit is required **prior** to construction, installation or operation for all equipment unless exempted. A complete list of exempt equipment and sources is available in AQMD Rule 219.

What Equipment Requires a Permit?

Any equipment or process that has the potential to emit air contaminants or which may eliminate, reduce or control the issuance of air contaminants, if not specifically exempted in AQMD's Rule 219, may require a permit (AQMD's Rule 201).

What is the Permitting Process?

The AQMD has a two-step permit program.

1. Permit to Construct

2. Permit to Operate

However, to streamline the issuance of permit applications, the two steps are combined in a single step, for certain categories of equipment. These applications are issued a Permit to Construct/Permit to Operate (PC/PO) and are issued for equipment that that either do not require a source test to be conducted, or an on-site inspection to observe the equipment or process in operation, and to verify the equipment description. Approximately, 50 % of applications that are received for Permits to Construct are streamlined and issued a PC/PO. Some of the more frequent equipment that are issued PC/POs' are dry-cleaning equipment and automotive spray booths.

To further expedite issuance of applications for permit to construct, the AQMD developed an optional program. A permit applicant can request expedited processing of the permit application pursuant to the requirements of Rule 301(y) and agree to pay an additional fee based on actual permit processing time. The requests for expedited processing is contingent on the availability of qualified staff to work on overtime to process these applications. Approximately, 20 % of the applications received for Permits to Construct are handled in this expedited manner. The majority of these applications are issued within 30 days.

What is a Permit to Construct?

Facility operators are required to obtain a Permit to Construct before construction or modification begins (AQMD's Rule 201). This allows AQMD staff time to review the project plans and determine if the project will comply with all applicable AQMD rules. The AQMD also integrates state and federal requirements for new source review into its Permit to Construct process.

A permit to construct serves as a temporary permit to operate upon notification to the AQMD of the completion of the construction until the permit to operate is granted or denied. A permit to construct expires one year from the date of issuance unless an extension of time has been approved in writing by the Executive Officer (AQMD's Rule 205).

As shown in Table I, approximately 22 % of the permit applications received yearly are for Permit to Construct.

Table I: Count of Applications Received in FY 2000-2001

Application Type Description	Count	% of total count
Permit to Construct	2,964	22%
Permit to Operate	536	4%
Plans & Excavation	606	5%
P/O no P/C	1,936	14%
Change of Ownership	2,161	16%
Alteration	1,353	10%
Change of Condition	783	6%
Others*	3,100	23%
Total	13,439	

What is a Permit to Operate?

The final permit issued to the facility operator for the equipment or process is the Permit to Operate. The Permit to Operate expires if the facility operator fails to pay the annual renewal fee for the permitted unit. An invoice is sent to each facility operator based on their billing cycle with a list of permitted equipment and temporary permits that are to be renewed (AQMD's Rule 301 9(d).)

If there is a change of operator of the permitted equipment, the new operator has to apply for a Change of Operator permit (AQMD's Rule 209). The AQMD deals with approximately 2,000 applications yearly for Change

of Operator, which represents approximately 16 % of the total applications received. See Table I.

What are the Regulated Pollutants?

The pollutants regulated by the Federal and State Clean Air Acts and AQMD rules and regulations fall under three broad categories.

- Criteria air pollutants;
- Toxic air contaminants; and,
- Global warming and ozone-depleting gases.

Criteria air pollutants

The focus of the Federal, State and AQMD regulations prior to the 1980s were mainly on the control of criteria air pollutants for which ambient air quality standards have been established. These are:

- Reactive Hydrocarbons
- Oxides of Nitrogen
- Oxides of Sulfur
- Carbon Monoxide
- Particulate matter (PM10) (in 1990, the focus shifted to particulate matter less than 10 microns)
- Lead

Toxic Air Contaminants

The list of toxic air contaminants regulated by the AQMD evolved from the list of original seven (7) hazardous air pollutants listed in the 1970 Federal Clean Air Act (CAA) to 188 hazardous air pollutants that were added in the 1990 Amendments to the Clean Air Act. Pursuant to Section 112 of the Clean Air Act, the EPA had to-date adopted National Emission Standards for Hazardous Air Pollutants (NESHAP) for the 4,7 and some of the 10 year MACT source categories and established Maximum Achievable Control Technology (MACT) Standards for these source categories.

At the State level, the CARB pursuant to Assembly Bill (AB) 1807 identified 18 toxic air contaminants and adopted eight Air Toxic Control Measures (ATCMs) to control the sources of some of these toxic air contaminants. Subsequent to the 1990 Amendments to the Federal CAA, California legislature in 1992 adopted AB 2728 (Tanner) that integrates the federal air toxics program and California's TAC Identification and control program.

The bill specifies the ARB must, by regulation, identify as TACs, the 188 substances the federal government has listed as HAPs. Promulgated NESHAPs will become state ATCMs under the new law. In those cases where the state has specified an emission standard more stringent than the federal standard, the state standard shall prevail. The ARB may also revise the federal standard to meet the purposes of the TAC identification and control program. For sources where there is not a federal emissions standard, ATCMs may be adopted following the existing procedures.

The AQMD in 1987 adopted a policy to assess risk from 34 toxic air contaminants and their compounds. The AQMD adopted Rule 1401 -New Source Review for Toxics in 1990 to address the cancer risk from permit units constructed after the adopted date of the rule. This rule has subsequently been amended several times to include additional toxic air contaminants and also to address non-cancer (acute and chronic) health effects.

Global warming and Ozone Depleting Gases

The AQMD Governing Board adopted a 10-point Policy on Global Warming and Stratospheric Ozone Depletion in 1990, that called for the phase-out of the use of ODCs. This policy complements national and international directives to phase-out production and use of many compounds over time. As a result of this phase-out, some increases in VOCs will occur, in instances where substitute materials contain small amounts of VOCs. Rule 1304(c)(6) provides an exemption from offsets for the replacement of ODCs used in facilities which will cause VOC emission increases on a case-by-case basis following specific guidelines. AQMD has developed an ODC Replacement Guideline document which identifies criteria for substitutions for processes currently using ODCs. This Guideline seeks to minimize any increases in VOCs, toxics, and global warming substances and adverse water quality impacts.

What is the breakdown of the application types received by the AQMD?

The types of applications that are received by the AQMD can be categorized as shown in the tables below.

- Permits to Construct
- Permits to Operate
- Change of Permit Conditions
- Alterations/Modification
- Change of operator
- Plans
- Emission Reduction Certificates
- Registration/Certification
- Initial Title V

What are the most common types of applications processed by the AQMD?

The top 10 categories of applications processed between October 2000 and 2001 are as follows:

1. Fuel dispensing and storage (gasoline stations) for new construction and modifications
2. Internal combustion engines for emergency electrical generation- diesel fired.
3. Spray coating operations - automotive and non-automotive operations conducted in a spray booth
4. Dry-cleaning equipment
5. Baghouse
6. Soil treatment/vapor extraction
7. Drying Ovens
8. Boilers
9. Powder coating systems
10. Printing press - Lithographic

What are the types of industries that file the most common received applications?

Based on the Calendar Year 2000, SB 1928 report, the breakdown by Standard Industrial Classification Code (SIC) for the top five industry categories is as shown below.

SIC	Description
5541	GASOLINE SERVICE STATIONS
7216	DRY CLEANING PLANTS, EXC RUG
7532	TOP & BODY REPAIR/PAINT SHOPS
1799	SPECIAL TRADE CONTRACTORS, NEC
7011	HOTELS, MOTELS & TOURIST COURT
2851	PAINTS AND ALLIED PRODUCTS

What are the different permit programs administered by AQMD?

- Regional Clean Air Incentives Market Program (RECLAIM)*
- Title V
- Non RECLAIM/Non-Title V Permits (Command and Control Permits)
- Compliance Plans
- Registration/Certification
- Streamlined Standard Permits

2-2 REQUIREMENTS

The certified permitting professional will be required to submit application packages that are complete.

The following items and information are required with each complete permit application submitted.

1. A completed AQMD application form 400-A.

2. A completed AQMD application supplemental form, Form 400-E-xx series, if available. If a supplemental form is not available, submit application package as per the instructions in Form 400-E-GI.
3. Background information concerning the subject facility and equipment with regards to air quality.

4. Detailed Process Description.

5. Criteria pollutant emission calculations including the following:
   Regulation IV, rule compliance evaluation.
   Regulation IX, rule compliance evaluation.
   Regulation X, rule compliance evaluation.
   Regulation XI, rule compliance evaluation.

6. Regulation XIII, rule compliance evaluation including:
   BACT evaluation.
   Provide offsets as required.
   Provide modeling as required.

7. Regulation XIV, rule compliance evaluation including health risk assessment, as required.

Examples of sample evaluation can be found on AQMD's website at www.aqmd.gov/cpp/samples.htm

Sample Evaluation for a Permit to Construct

Standard Evaluation for Permit to Construct

Please note that in accordance with Rule 201, "A person shall not build, install, erect, alter or replace any equipment, the use of which may cause the issuance of air contaminants or the use of which may eliminate, reduce or control the issuance of air contaminants without first obtaining written authorization for such construction from the Executive Officer".
General instructions, such as this, are italic hidden text. Before you print this evaluation for submittal, please hide this text by removing the checkmark from the "Hidden text" box under menu item File\Print\Options. ***This format is intended to supplement, not duplicate or replace the AQMD's equipment specific Forms 400-E. Please add space between headings as necessary.***
This evaluation, upon submittal, will become part of AQMD records subject to the California Public Records Act. If you wish to claim confidentiality, please make sure that all submitted information which you wish kept confidential is clearly marked as such and state the reason(s) for claiming confidentiality. Examples of acceptable reasons are trade secrets and proprietary information. Please note that information on emissions cannot be declared as confidential.
In general, use the minimum verbiage necessary to address all questions and demonstrate compliance with all regulations. You may complete one evaluation for multiple ***identica****l equipment submitted at the same time and you may complete one combined evaluation for basic equipment with its control equipment, but please submit one copy of the evaluation with each Application Form 400-A.*

COMPANY NAME

Same as on the Application Form 400-A. Please indicate if this company is a separate corporation or a wholly owned subsidiary of another corporation.

EQUIPMENT LOCATION ADDRESS

Same as the Equipment address/location for the Facility on the Application Form 400-A. Remember to verify that this equipment is located within SCAQMD boundaries.

EQUIPMENT DESCRIPTION

In order to successfully complete this section, it helps to familiarize yourself with the format typically used by the AQMD. In general, please list the basic equipment separate from the control equipment. For each major component of process or control equipment, provide in this order the make, model, size (dimensions), type of fuel or material, hp rating, BTU/hr or electrical rating, and any peripheral item (i.e., serial number, pump or exhaust fan motors) that would aid identification of similar (and especially identical) equipment. For continuous process lines, please list the components of equipment in a process flow order. Include all Rule 219 exempt equipment used within the continuous process line. Upon agreement by the AQMD, this equipment description will be used on the permit. For examples to describe equipment: basic and control and to determine permit units, see Certified Permitting Professional Manual).

The following is a sample of command and control equipment description for two types of equipment: basic and control (See Chapter IV for more examples)

Basic Equipment Description:
FURNACE, BRASS MELTING, INDUCTOTHERM, LINEMELT, MODEL 60, 5100 POUNDS CAPACITY, 600 KW ELECTRIC INDUCTION HEATED.

Control Equipment Description
AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. BAGHOUSE, KELCO, MODEL J-2, WITH 25 FILTER BAGS, EACH 4" DIA X 6"-0" L, AND A MANUAL SHAKER.

2. EXHAUST SYSTEM WITH A 3 H.P. BLOWER VENTING AN ABRASIVE BLASTING CABINET.

HISTORY AND PERMIT BACKGROUND

- In general, what does the company do at this location?
- When did the company start doing business at this location?
- Was there a previous owner of this business?
- Is this a RECLAIM and/or a Title V facility?
- Identify in which Zone (I or II) the facility is located in? See Rule 2005 for map.
- Did any noteworthy air quality events take place at this location? (Complaints? Notices to Comply for a Permit?, Notices of Violation?, Clean Air Awards?) For large facilities, focus on the equipment or process in question and any interdependent equipment/processes. Please provide details.
- Is this application for new installation, change of ownership (with or without any change in operation) modification/alteration or change of condition for existing equipment?
- If it is relocation, is it a partial or a full relocation of all the previously permitted equipment? Clearly indicate the previous location address and provide a list of permitted equipment that are to be relocated.
- Does this company or any company have any existing equipment at the premises where this equipment will be installed? If yes, provide details including all company names and AQMD's ID numbers.
- Does this company or any company that the company has a business relationship with or that is under common control have any existing equipment at any contiguous facility. If yes, provide details including all company names and AQMD's ID numbers.
- If equipment is being removed from service (replacement, mitigation, etc.,) please provide the permit number of the equipment being removed.

- If this equipment has a prior permit, list the previous permit number and attach copy of the permits, if available. Also, provide status of the permit – active or inactive.

- What is expected start date of construction and start-up of operation for this equipment? Is this a multi-year project that may require more than a year to finish construction once the permit to construct is issued?

- Provide information on any denials or Hearing Board Variances and Orders.

- What permits have been issued within the last two years?

- Please provide plot plan of entire facility showing location of equipment that are existing and that are proposed for construction. Also, indicate cross streets and location of any nearby (within 1,000 feet of the property boundary) sensitive receptors (schools –K-12, day care centers, etc.)

PROCESS DESCRIPTION

- For air pollution control systems, please provide description of operation principles and operating parameters (temperatures, pressure drops, scrubbing liquid recirculation rates, etc). Also, provide detailed calculations showing how the control efficiency was determined (manufacturer's data sheet, calculations etc.)

- Please describe the new process (or existing process, and how it will be modified) and the purpose of this process and provide detailed drawings of proposed equipment. Include any manufacturer's specification and technical data sheet if available.

- Include process specifics such as a description of the raw materials, chemical reactions, physical changes, discharge products, throughput flow rates (lbs/hr), temperatures, pressure drops, and production rates (lbs/hr). This information should be supplied in the form of a material balance. In addition, please supply maximum expected operating time in hours/day, days/week and weeks/year.

- Indicate if the process will be a batch or a continuous process. Please provide a process flow diagram (may be separate document) with major items of equipment labeled to supplement this descriptive material indicating the location of all transfer points and expected points of fugitive and controlled emissions. For large facilities, please indicate product/flow rates to and from other interdependent processes, and include application or permit numbers for equipment that requires or has a permit.

- Identify emission points and whether these points will be controlled and the type of control equipment.

DATA AND EMISSION FACTORS

It is not necessary to repeat data specified on the equipment specific Form 400-E, but please include any other data and conversion factors with their reference source used in the subsequent "Calculation" section.

Sources of emission data for non-attainment air contaminants (criteria and non-criteria) and toxic air contaminants.

(Criteria pollutants include reactive hydrocarbons (ROG), oxides of nitrogen (NOx), oxides of sulfur (SOx), carbon monoxide (CO) and particulate matter less than 10 microns (PM-10) and toxic air contaminants include all pollutants listed in Rule 1401).

Identify and indicate for each emission source, and for criteria and toxic air contaminants, the data source used to determine emission rates.

___ Source Test Date: _____
Reference No_____
Source Testing Company: _____
Report attached (Yes/No) _____

___ Manufacturer's Specification (attached)
___ Emission factor (choose one of the following):
___ RECLAIM emission factor _____
___ RECLAIM emission rate _____
___ RECLAIM concentration limit _____
___ BACT emission limit _____
___ command and control emission limit _____
___ NSR applicability limit
___ NSPS _____
___ SCAQMD Reg XI emission limit _____
___ AP-42, specifically _____
___ NESHAP/MACT requirement _____
___ AB2588 program emission factor
___ Other, reference _____

EMISSION CALCULATIONS

Showing each step of your calculations and stating all assumptions will help avoid permitting delays.

- Please provide emissions estimates for each contaminant from all emission points described in the Process Description section above. See Rule 1306 for procedures to calculate emission

increases and offset amount for non-RECLAIM sources and Rule 2005 for RECLAIM sources.

- Provide the following emission calculations:

1. Average pounds per hour for uncontrolled emissions (AHU or "R1").

2. Average pounds per hour controlled emissions (AHC or "R2").

3. Maximum uncontrolled emissions pounds per hour (provide basis for determining maximums). (MHU)

4. Maximum controlled emissions pounds per hour (MHC)

5. Daily maximum uncontrolled emissions pounds per day (MDU)

6. Daily maximum controlled emissions pounds per day(MDC)

7. Annual average emissions (AA), pounds per year

8. 30-day-average emissions (30DA, in lbs/day), which is the maximum daily controlled emission rate multiplied by the maximum days operated in a month divided by a constant of 30.Provide basis for process weight calculations and PM/PM10 emissions calculations.

Please summarize your results for criteria pollutants using the following format as shown in the table below.

Emission rates	ROG	TOG	NOx	SOx	CO	PM	PM10
AHU							
AHC							
MHU							
MHC							
MDU							
MDC							
AA							
30DA							
Offset ratio							
Offset amount***							

Provide basis for process weight calculations and PM/PM10 emissions calculations.

* PM-10 emissions are assumed to be 50% of the total particulate matter emissions (PM) unless there is supporting data to suggest otherwise. For combution sources, all the considered PM10 unless otherwise provide.
** TOG- total organic gases. This is a total of the Reactive organic gases (ROG) and the unreactive organics such as CFCs'.
*** To determine offsets required, emissions greater than 0.5 pounds a day are rounded to 1.0.

Toxic air contaminants (TACs):

1. Identify all the TACs' that are listed in Rule 1401,emitted from the emission sources. Indicate for each TAC:

   a. The hourly emissions (for TACs' with acute health effects only).

   b. The maximum annual emissions in tons/year for TACs' that causes chronic health effects and cancer.

2. The closest receptor distances, outside the property boundary, for each of the emission sources.

3. Release parameters of the source. Is it a point, volume or an area source? For point source, indicate stack temperature, diameter, flow rate, and stack release height.

4. Calculate the health risk: cancer and non-cancer, from all applicable sources. For guidance to screening health risk assessment, please use District Health Risk Assessment Guideline, Version 5.1 or thereafter. If an alternate procedure was used to calculate the health risk assessment, please provide the reference and the methodology used.

RULES EVALUATION

List all AQMD rules that are relevant to this project, state the rule requirements that you must comply with and why you believe you comply with these requirements. Focus on the following regulations; for any that are not applicable, state "Not applicable." If the equipment is subject to a rule, but exempt from part or all of the rule, please identify the exemption claimed and explain why that exemption applies:

REGULATION II

RULE 212:

- Is this a significant project as defined in Rule 212? Is the emission source located within 1,000 feet of the outer boundary of any school (K-12) or facility emissions greater than the values in Rule 1304, Table A or if the risk is greater than the allowed risk.

RULE 219:

- Is operation of this equipment dependent on any Rule 219 exempt equipment (e.g. forklifts, small IC engines, etc.)? If so, identify equipment and its emission potential.

Other Reg II as applicable.

REGULATION IV

Rule 402: What is the potential of this equipment to cause a nuisance (odors, etc)

Other Reg IV as applicable.

REGULATION IX: New Source Performance Standards

REGULATION X: National Emission Standards for Hazardous Air Pollutants

REGULATION XI: Source Specific Regulations

REGULATION XIII New Source Review

Address compliance with Best Available Control Technology (BACT), Offsets and Modeling, as follows:

BACT

- Is the equipment subject to BACT or LAER or is it exempt? (if maximum emission increase is less than 1 pound a day – emissions less than 1.5 are rounded to 1.0)

- How does it comply with the requirements?

- Indicate reference sources used to demonstrate compliance with BACT or LAER.

- (Information on BACT/LAER determinations can be obtained from AQMD's website, www.aqmd.gov in the "Getting Permits" section.

Offsets:

- Is the facility potential to emit (PTE) for all the criteria pollutants less than 4 tons (29 tons for CO) per year after the emissions from this equipment is added? (attach NSR facility balance data if available)

- If offsets are required, are ERCs, RTCs provided? (attach certificates)

Modeling

- Do the emissions from this equipment for NOx, CO, and PM-10 equipment pass the screening limits in Table A-1 in Rule 1303?

- If not, provide modeling results to demonstrate compliance with the limits established in Table A-2 in Rule 1303. (attach modeling input and output files)

REGULATION XIV
Rule 1401

- Indicate how compliance with this rule will be achieved. Is the evaluation for risk based on Tier I, or higher Tier analysis or is it exempt from the rule? Indicate the methodology used to calculate the risk.

- If T-BACT is needed to demonstrate compliance with the rule, indicate why the control equipment should be considered T-BACT.

- Is the equipment subject to any other Reg. XIV rules?

REGULATION XVII - Prevention of Significant Deterioration (PSD)
Compare actual emissions (from Emission Fee Billing Reports) to new potential to emit emissions for NOx and SOx. If emission increases are greater than 40 tons per year for NOx or SOx, PSD analysis is required.
REGULATION XX: RECLAIM
REGULATION XXX: Title V
CEQA

- Is this equipment part of a project subject to CEQA? Has a CEQA document been prepared and certified for this project? Was the project granted a Notice of Exemption or a Negative Declaration? (attach copy)

- Has the CEQA form been completed? Are there any significant impacts?

RECOMMENDATION
Include any additional information here that helps "make the case" that the equipment/process will comply with all AQMD Rules and Regulations when in operation.
Compliance with SCAQMD's applicable Rules and Regulations is expected.
___ Issue a Permit to Construct subject to the following conditions:

PROPOSED PERMIT CONDITIONS

In order to successfully complete this section, it helps to familiarize yourself with the permit conditions that are typically added to an AQMD permit. Consider the amount of operating flexibility needed. Propose operating, material usage, and production limits that the company can "live within." These limits become the basis for the (maximum) emission calculations, emission offset requirements and rule compliance. Upon agreement by the District, these conditions will be used on the permit.

SCAQMD use only:

Permit processor's Name: _____ Date: _____
___ I concur with the evaluation and recommendation in this document.
___ I concur with the evaluation, but recommend issuing a Permit to Construct/Operate subject to the same conditions.
___I concur with the evaluation, but recommend using a different set of permit conditions. See attached dated document.
___I do not agree with the evaluation and/or recommendation in this document. See attached dated document.
Reviewers Name: _____ Date: _____
___ I also concur with the evaluation and recommendation in this document.
___ I do not agree with the evaluation and/or recommendation in this document.
Returned to permit processor on Date: _____

Prior to the submittal of an application to the AQMD, it is essential that the applicant seeking a permit to construct or operate the source:

- identify the type of air emissions associated with the source. For instance, a boiler has a potential to emit VOC, NO_X, SO_X, CO, PM_{10} and carcinogenic air contaminants, while a gasoline storage tank emits VOC and carcinogenic air contaminants;
- consider the possibility that the source may be exempted from a written permit;
- determine the impact of the source to the environment;
- consult with the AQMD staff; and then
- submit an application.

2-3 CASE STUDY: AIR EMISSIONS

Greenlander Refining Company is a petroleum product refining company located in Signal Hill. The applicant operates a hydrogen production plant under a valid AQMD permit. Carbon dioxide (CO_2) is the product of one of the chemical reactions that occur at the hydrogen plant. The applicant has indicated that 17,500 pounds per hour of CO_2, 4,729 pounds per hour of water, 127 pounds per hour of nitrogen, 38 pounds per hour of oxygen, and traces of hydrocarbons are currently being discharged to the atmosphere from the hydrogen plant. The applicant is proposing to construct a CO_2 plant. This plant will serve as control equipment, purifying the CO_2 streams from the hydrogen plant, such that the end product is usable at industrial or consumer levels.

The vent streams from the hydrogen plant are cooled from 170°F to 45°F by a series of coolers and separators. The bottoms of each of the separators are routed to the drains. The chemical makeup of the bottom streams are innocuous nitrogen and oxygen gases. The top effluent is compressed to +50 psig and cooled through a first stage aftercooler using

ammonia as the refrigerant. A small amount of water vapor may be condensed depending on the ambient conditions. The gas is further compressed to about 300 psig and cooled through an aftercooler and an afterchiller. The majority of the remaining moisture, alcohols, sulfur compounds, heavy hydrocarbon, and odors are finally removed from the gas stream by an activated alumina dryer system. The CO_2 stream is passed through two heat exchangers, cooled from 45°F to 0°F, condensed to a liquid state using low pressure ammonia, and discharged to a stripper to remove any non-condensable gases. Non-condensable gases are vented to the atmosphere. Vapors from the stripper are cooled, expanded and stored in storage tanks. The compressors are powered by electric motors. The liquid refrigerant (ammonia) is stored in receivers until required in the aftercoolers or afterchillers.

Problem

1. List all the air contaminants issued or controlled at the CO_2 plant.

2. Should the applicant submit any application for the CO_2 plant on the basis of what you have learned in AQMD Rules 102, 201, and 203 about air contaminants?

Answer

1. The type of air contaminants issued or controlled at the CO_2 plant depends on the equipment at the plant and on the composition of the CO_2 feed streams from the hydrogen plant. Hydrogen is produced as a result of four sequential chemical reactions. These step-by-step chemical reactions involve:

   (i) catalytic endothermic reaction of methane with steam, $CH_4 + H_2O \rightarrow CO + 3H_2$ (Reforming);

   (ii) exothermic reaction of carbon monoxide with more steam in a fixed-bed catalytic reactor,

   $$CO + H_2O \rightarrow CO_2 + H_2 \text{ (Shift Conversion);}$$

(iii) absorption of CO_2 in an amine or hot potassium carbonate solution (Gas Purification). CO_2 gases recovered are routed to the CO_2 plant; and

(iv) conversion of any traces of carbon monoxide and carbon dioxide remaining in the hydrogen gas to methane,

$$CO + 3H_2 \rightarrow CH_4 + H_2O;$$

$$CO_2 + 4H_2 \rightarrow CH_4 + 2H_2O \text{ (Methanation).}$$

It is evident from these chemical reactions that gas streams from the hydrogen plant may contain small amounts of carbon monoxide, a non-attainment air contaminant. Sulfur compounds may not be present in the CO_2 stream unless the hydrogen plant feed is not sulfur-free. Normally, however, the hydrogen plant feed is sulfur-free. Ammonia may be emitted from the storage receivers or through the shaft of the compressors. Ammonia is considered to be one of the non-attainment air contaminants because it is a precursor to particulates.

2. Yes, the applicant should submit an application for the CO_2 plant because the plant does have sources which, when used, have potential to cause the issuance of ammonia emissions and other air contaminants listed in Table 1 in Rule 1401.

2-4 CASE STUDY: IMPACT OF A SOURCE TO THE ENVIRONMENT

An airport in Southern California is served by six commercial air carriers and three commuter airlines. In 1983, nearly three million passengers used the airport, but it is estimated that the current level of demand for service exceeds seven million. Estimates for the year 2000 indicate that almost twenty million total passengers will be generated by the population of this region. In 1989, the airport officials proposed to expand current facilities to accommodate the projected increase in general aviation and commercial air carrier activity at the airport.

The project involved constructing new facilities and modifying old ones. One of the facilities to be constructed at the airport was an Aircraft Fueling

System. The proposed Aircraft Fueling System required the construction of the following sources:

1. Jet A Fuel Hydrant System.

2. Three 300,000 gallon capacity Jet A Fuel Storage tanks.

3. Jet A Fuel Tank Truck/Refueler Loading Facility.

4. Two Jet A Fuel Unloading Facilities

5. Tank Farm Oil/Water Separator.

6. Eastside Oil/Water Separator.

Based on emission calculations, the expected total VOC emissions from all the sources are 7 pounds per day. Most of these emissions will occur during the refueling of airplanes at the hydrant system. One of the sources, Tank Farm Oil/Water Separator, is located within 900 feet from the outer boundary of an elementary school, and it emits 1 pound per day of VOC emissions.

Problem

1. Focusing exclusively on information provided in the case study and AQMD Rule 212, do you believe that the project is significant? Justify your answer.

2. Should the applicant submit applications for any of these facilities on the basis of what you have learned in AQMD Rules 102, 201, and 203 about air contaminants?

Answer

1. The project is a significant project because the Tank Farm Oil/Water Separator is located within 1000 feet from the outer boundary of an elementary school, and it emits 1 pound per day of VOC emissions.

AQMD Rule 212 requires that the Executive Officer prepare and the applicant distribute a public notice to all the parents of children in that elementary school living within ¼-mile of the project and to each address

within a radius of 750 feet from the outer boundary of the proposed project.

2. Yes, the applicant should submit an application for each of the sources listed in the case study because each source emits VOC.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) is a state law designed to inform government decision makers and the public of any potential adverse environmental effects of proposed projects. CEQA is intended to prevent or minimize environmental damage from activities undertaken by public agencies; activities undertaken by private individuals or businesses that require a permit, funding, or other approval by a public agency; and any projects that have the potential to adversely affect the environment. To accomplish this goal, public agencies are responsible for analyzing the potential for adverse environmental effects generated by a project in their jurisdiction and, if significant adverse impacts are identified, mitigating or avoiding these environmental impacts to the greatest extent feasible.

Under CEQA, the SCAQMD, as a public agency, can assume the role of either a lead agency or a responsible agency. A lead agency is the public agency that has the principle responsibility for carrying out or approving a project that is subject to CEQA. The SCAQMD acts as lead agency for its own projects (e.g., adoption of rules, regulations, or plans). The SCAQMD also acts as lead agency for projects that require an SCAQMD permit and where the SCAQMD has greater approval authority over the proposed project compared to other public agencies. A responsible agency is a public agency with discretionary approval authority over a portion of a project for which a lead agency is preparing or has prepared a CEQA document. The SCAQMD acts as a responsible agency for projects that include equipment requiring an SCAQMD permit, but where another public agency is the lead agency (e.g., construction of a new industrial facility).

The SCAQMD has formalized its environmental review process by developing Form 400-CEQA to be completed by the applicant for each project. Form 400-CEQA is a screening tool used by the SCAQMD to determine if the project is exempt from CEQA, or if an analysis of potential environmental impacts is necessary. If a CEQA analysis is necessary, the SCAQMD will contact the project applicant to discuss and assist with the steps necessary to fulfill the requirements of CEQA.

REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

The first step of any CEQA evaluation is to determine if the permit project is subject to CEQA at all. If the project is exempt from CEQA, the environmental evaluation process does not proceed further.

The "Review for Exemption from Further CEQA Action" section (i.e., questions A through I) on Form 400-CEQA lists application types that are exempt from further CEQA action. If your project is one of the items listed in the “Review for Exemption from Further CEQA Action" section on Form 400-CEQA, you do not need to complete the section “Review of Impacts Which May Trigger CEQA” (i.e., questions 1 through 12). All other types of

permit applications must complete the entire Form 400-CEQA before your application can be deemed complete. If submitting multiple applications for the same project, only one Form 400-CEQA is necessary. Form 400-CEQA and supporting material are available by hardcopy or by accessing the SCAQMD website at http://www.aqmd.gov/ceqa/400CEQA.html.
It should be noted that one of the categories exempting an application from further CEQA action is if a CEQA document was previously prepared that specifically evaluates the project. If this is the case, the Final CEQA document must be submitted before a permit can be issued.

INSTRUCTIONS TO COMPLETE FORM 400-CEQA

Provide facility-specific information and briefly describe the project.
Answer all questions in "Review for Exemption from Further CEQA Action."
If there are any "Yes" responses, skip to Instruction 6, below.
Answer all questions in "Review of Impacts Which May Trigger CEQA."
Refer to Form 400-CEQA Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention, for additional guidance with Section II, Question #7.
Attach pertinent information regarding any environmental topic to explain "yes" responses (e.g. estimated quantities, volume, weights, etc.).
Sign page 2 of the form (by the responsible official of the firm, the preparer or both, as necessary).
Include Form 400-CEQA and its attachments to the main project application submitted with Form 400-A and the other appropriate documents.
No additional fee is required for processing the 400-CEQA form.

NOTICE OF EXEMPTION (OPTIONAL)

Once a project evaluated by SCAQMD staff is determined to be exempt from CEQA and the permit is issued, the applicant has the option to file a Notice of Exemption (NOE) with the county where the project is located. Though filing a NOE is optional, doing so within five days after the permit is issued will limit the period of time someone can file a court action challenging the approval of the project to 30 days. This is known as a "statute of limitations" for public review of the NOE. However, if an NOE is not filed, the statute of limitations will be 180 days.
To file a NOE, it is the responsibility of the applicant to complete the attached template and submit it to the appropriate county within the deadline. A fee is required from three of the four counties to file a NOE with the following county clerks:

County of Los Angeles $25* County Clerk 12400 E. Imperial Hwy, Room	County of Orange County Clerk, EIR Desk 12 Civic Center Plaza, Room 106 Santa Ana, California 92702

2001 Norwalk, California 90650 (562) 462-2057	(714) 834-4625
County of Riverside County Clerk 2724 Gateway Drive Riverside, California 92507 (909) 486-7077	County of San Bernardino Clerk of the Board 385 N. Arrowhead Ave. San Bernardino, California 92415 (909) 387-3841

* Since fees are subject to change, contact the county clerks at the above phone numbers to verify the correct fee.
If the applicant would like the SCAQMD to prepare the NOE for their project, a preparation fee pursuant to Rule 301 (i)(1) will need to be collected by the SCAQMD at the same time the 400-CEQA form is submitted to the SCAQMD. Because of the time limits imposed by CEQA, if a project is deemed exempt, submitting the appropriate preparation up front will ensure the NOE is filed in a timely manner. If the project does not qualify for an NOE, the full amount will be returned. Due to the timing of filing and the county fee required to post the NOE, the applicant will be responsible for submitting the NOE, along with the applicable county fee, to the appropriate county.

References

1. AQMD Rules and Regulations, *New Source Review: Definitions,* Rule 1302.

2 AQMD. Draft Environmental Impact Report for 1991 Air Quality Management Plan. March 1991, Section 3.2.2

3 United States Codes: Congressional and Administrative News - 88th Congress-First Session. 1963., pg. 1263

4 Bromberg, P. J., Clean Air Act Handbook: How to Comply with the Clean Air Act, pg. 21.

5 United States Codes: Congressional and Administrative News - 88th Congress-First Session, 1970, pg. 5356

6 AQMD. Draft Environmental Impact Report for 1991 Air Quality Management Plan, March 1991, Section. 3.2.2

7 United States Codes: Congressional and Administrative News - 90th Congress-First Session, 1967, pg. 1950.

8 Bromberg, P. J., Clean Air Act Handbook: How to Comply with the Clean Air Act, pg. 67.

9 California Air Resources Board, California 99 Air Pollution Laws: Health and Safety Code, Section 39606(a).

10 California Code of Regulations, Title 17, Sections 60201-60209.

11 AQMD Rules and Regulations, New Source Review of Carcinogenic Air Contaminants, pp. 1401-7&1401-8.

12 AQMD Rules and Regulations, Rule 205 - Expiration of Permits to Construct: Implementation Plan, pp. 2-3.

13 AQMD Rules and Regulations, Engineering Division Policy Guidance Memoranda: Guide in Determining Whether a Legal Transfer of Ownership, Operator, or Lessee has Occurred. June 28, 1982, pp. B-16

Additional Reading Materials

1. AQMD Rules and Regulations, Regulation II.

2. California Air Resources Board, California Air Pollution Laws: Health and Safety Code.

3. AQMD. Draft Environmental Impact Report for 1991 Air Quality Management Plan. March 1991.

4. AQMD. CEQA: Final Draft Air Quality Handbook, September, 1992.

5. Office of Planning and Research. The California Environmental Quality Act- CEQA, 1992

6. Bromberg, P. J., Clean Air Act Handbook: How to Comply with the Clean Air Act.

CHAPTER III

PERMIT/SUBMITTING APPLICATION

3-1 CONSULTATION WITH DISTRICT STAFF

It is strongly recommended that applicants meet and discuss their proposed projects with District staff before submitting permit applications. When the process of consultation is performed properly, information about the project is shared relatively quickly between the proponent of the project and the processing engineer, thereby enabling the engineer to evaluate the application quickly. This consultation is often used by both the District and applicants to make the following initial determinations:

- whether the use of the project will cause, eliminate, reduce or control the issuance of regulated air contaminants;
- whether the project is exempted from a written permit by District Rule 219;
- whether the project is located in a Class I area and subject to PSD requirements.
- whether the project is subject to CEQA and what is required;
- the number and boundaries of permit units;
- whether all the pertinent information needed by the District to evaluate the project or individual permit unit has been submitted by the applicant;
- whether the project is subject to or exempted from District New Source Review or Toxic rules;
- Best Available Control Technology (BACT) for the project, and whether the applicant is proposing to install the technology;
- whether emission offsets are required, how emission offsets can be acquired, and how emission reduction certificates can be used to offset emission increases;
- whether the project has a potential to emit any of the carcinogenic air contaminants listed in Table 1 in Rule 1401.
- the calculation of permit fees; and

- how the permit application can be expedited.

3-2 APPLICATION FILING

The next step is for the applicant to submit a permit application to the District. There are three reasons for requiring an applicant to submit an application for a Permit to Construct or Permit to Operate a project:

- The proposed project is subject to the District Rule 201, because its use may cause or control the release of air contaminants if it is altered, erected or built.

- The proposed project is subject to the District Rule 203, because its may cause or control the release of air contaminants if it is operated.

The applicant and the Executive Officer have certain responsibilities whenever an application is submitted for a permit to construct or operate. The applicant is responsible for ensuring that any application submitted under District Rule 201, 203, or 208 includes information that is complete and pertinent to the source (Rule 210 (a)). The Executive Officer, on the other hand, is responsible for:

- notifying the applicant in writing within 30 calendar days after the submittal of the application whether the application is complete. The word "complete" means that the information provided by the applicant is sufficient for the District to determine whether the source can be expected to operate without emitting air contaminants in violation of Section 41700, 41701, or 44300 of the State Health and Safety Code, state or federal air pollution laws, or any of the District applicable rules and regulations (Rule 212 (a)). If the application is deemed incomplete, the Executive Officer is required to notify the applicant in writing of the additional information needed for the application to be deemed complete. District Rule 210(c) gives the Executive Officer authority to deny an application for a permit to construct if the applicant does not submit the additional information necessary for the application to be deemed complete within 120 calendar days after the filling of the application;

- granting or denying a permit to construct within the time limits specified under District Rule 210(d); and

- notifying the applicant in writing as to whether the permit is approved or denied [Rule 210(e)].

In order for the Executive Officer to carry out these responsibilities, every application received by the District is:

- Prescreened,

- Pre-reviewed, and

- Evaluated either for permit issuance or denial.

3-2.1 APPLICATION FORMS

When it has been determined that a piece of equipment requires a permit from the AQMD, an application must be submitted. Submitting an application which is complete, with all forms filled out correctly and all supplemental information included is the key to avoiding delays. The major factor in slowing down the permitting process is time consuming additional information requests. Applications that are submitted by a permit application training graduate will be complete, correct, and not require additional information.

There are basically two types of permit applications that can be submitted:

- Permit to Construct (P/C) applications - permits to construct new equipment, permits for modifications to existing permit units, and permits for changing locations of permit units.

- Permit to Operate (P/O) applications - permits to operate equipment that was installed or modified without a permit to construct, permits to operate equipment that was previously exempt from the permit system, permits for changing conditions of existing permit units, and change of operator permits for equipment that is changing operator, but will remain at the same location and be operated under the same conditions and without physical alterations, and permit applications are submitted within one year from the last valid permit renewal date.

Depending on the type of permit, different forms are required. These are:

- Form 400-A - This is the basic permit application form that contains information about the equipment that will be permitted, the company that will own the equipment, and the facility at which the permitted equipment will be located. This form is required for all P/Cs and P/Os. A separate form 400-A is required for each permit unit.

- Form 400-E-Gen - This form is a general supplemental information list and must accompany the 400-A form when there is no form 400-E, specific equipment form, available for the proposed equipment.

- Form 400-E-XX - This is actually a series of specific equipment forms. These forms request detailed information on individual permit units. These forms must be submitted with the 400-A when the equipment being permitted has a 400-C available. A separate equipment form is required for each permit unit.

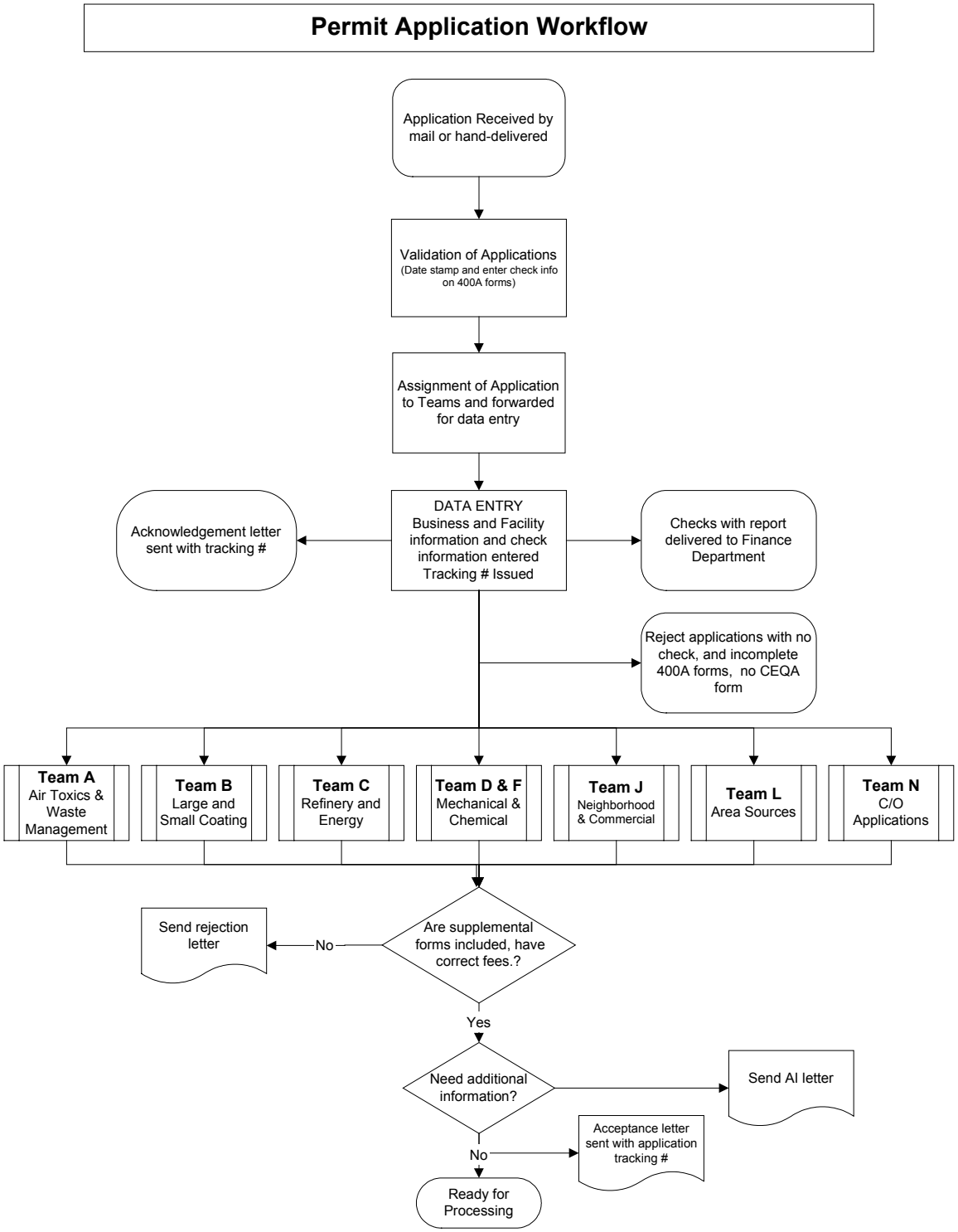
- Form 400-P - Compliance form

- Supplemental Form for Certified Equipment: - This form is a series of equipment specific forms that require basic equipment information.

- Expedited Permit Processing Review pursuant to Rule 301(y) - Form XPP

3-3 PRESCREENING

The application is received either by mail or personal delivery at the Permit Administration Team. The application is validated (date received time-stamped, check information entered and the number of application received for the project is noted.) Permitting staff identifies the Team that will handle the application and enters data from the 400A Form into the computer to generate an ID number if it is a new facility and an application number.


Permit Application Workflow
Application Received by mail or hand-delivered
Validation of Applications
(Date stamp and enter check info on 400A forms)
Assignment of Application to Teams and forwarded for data entry
DATA ENTRY
Business and Facility information and check information entered
Tracking # Issued
Acknowledgement letter sent with tracking #
Checks with report delivered to Finance Department
Reject applications with no check, and incomplete 400A forms, no CEQA form
Team A
Air Toxics & Waste Management
Team B
Large and Small Coating
Team C
Refinery and Energy
Team D & F
Mechanical & Chemical
Team J
Neighborhood & Commercial
Team L
Area Sources
Team N
C/O Applications
Are supplemental forms included, have correct fees.?
No
Send rejection letter
Yes
Need additional information?
Send AI letter
No
Acceptance letter sent with application tracking #
Ready for Processing

The application is rejected by Permit Services staff, after a tracking number is assigned, if any one of the following items are missing

- Form-400A;
- Unsigned Form 400-A;
- No payment attached; and
- CEQA form.

The applications are then delivered to the respective permit processing teams based on the industry type. Change of operator applications are handled by the Permit Administration team, except for applications from RECLAIM or Title V facilities.

3-3.1 PERMIT PROCESSING UNIT

The application is assigned to a processing engineer. The engineer pre-screens the application for completeness and uses the computer system to determine the correct permit processing fee. AQMD's Rule 301 requires that the correct permit processing fee is submitted with the application. If the fees are insufficient, the application may be rejected.

The application package is thoroughly reviewed by the processing engineer for completeness. If the application is deemed incomplete, the processing engineer notifies the applicant in writing of his or her determination within 30 calendar days after the initial receipt of the application. The processing engineer, through the notification letter, may require that the applicant clarify and/or provide additional information necessary for the application package to be deemed complete. The engineer reviews the application package again within 30 calendar days after receiving additional information from the applicant. The engineer checks the application for completeness every time additional information is received from the applicant. This process of reviewing and, if necessary, requiring additional information in writing within 30 calendar days continues until the application is either deemed complete or the permit for which the application is filed is denied. The Executive Officer's decision to deny the permit for which the application is filed or deem an application incomplete may be appealed by the applicant before the AQMD Hearing Board or the AQMD Governing Board.

3-3.2 APPLICATIONS DEEMED INCOMPLETE

Rule 210(b) permits an applicant to appeal the Executive Officer's decision to the AQMD Governing Board in cases where permit applications are deemed incomplete. The Governing Board has 60 calendar days after the receipt of the applicant's appeal to make and present its judgment in writing to the concerned parties. The Executive Officer cannot deny a permit application during the appeal period.

3-3.3 PERMIT APPLICATIONS DENIED - INSUFFICIENT INFORMATION

A permit for which an application is submitted can be denied on the basis that the applicant did not submit sufficient information necessary for the engineer to deem the application complete within 120 calendar days after the initial receipt of the application, unless the Executive Officer, in writing, has extended the time. The engineer is required to notify the applicant in writing of the reason(s) why the application is denied. As a result of this denial, the AQMD will not accept further applications for equipment associated with the denied permit until the applicant has fully addressed and presented remedies for the reasons for denial of the permit (Rule 214). The applicant may appeal the Executive Officer's decision to the AQMD Hearing Board in writing within ten days after receiving a denial notification from the Executive Officer. Rule 216(a) requires that the AQMD Hearing Board begin a public hearing not later than 30 calendar days after the receipt of the applicant's petition.

3-3.4 PERMIT APPLICATION EVALUATION

Once a permit application has been deemed complete, the processing engineer evaluates the application to determine whether it should be approved or denied. The engineer has between 90 to 180 calendar days (one year in some cases where CEQA is needed) from the date the application is deemed complete to either deny or approve the permit application.

If the processing engineer fails to either deny or approve the permit application within the time limits specified by Rule 210(d), Rule 215 allows the applicant to deem the permit application denied and appeal the denial before the AQMD Hearing Board.

In order for a permit application to be approved or denied, the processing engineer uses the data provided by the applicant to: (i) determine whether the source is exempted by Rule 219; (ii) calculate the level of air pollutant emissions associated with the source; and (iii) determine whether the source can be expected to operate in compliance with all applicable AQMD rules and regulations. During or at the completion of the engineering evaluation, the processing engineer may recommend that the AQMD:

- cancel the application because the emission source is exempted from a written permit by Rule 219, or the emission source does not emit or control regulated air contaminants;
- cancel the application because the applicant has decided not to build or install the equipment;
- cancel the application because the applicant has changed the application or submitted a revised replacement application;
- deny the application because the equipment cannot be expected to operate without violating AQMD, state or federal rules and regulations, or the Health and Safety Code; or
- approve the application for permit to construct or operate or issue a certified equipment permit.

3-4 EXEMPTED SOURCES

There are two scenarios under which the processing engineer can exempt an emission source from a written permit. The first scenario relates to Rule 219. Emission sources exempted from written permits are listed in Rule 219. The second scenario involves Rules 201 and 203. These rules require written permits for emission sources that issue or control air contaminants. From this requirement, any emission source that does not emit or control air contaminants is exempted from a written permit.

When applications are exempted from written permits by either of these scenarios, the processing engineer usually recommends that the applications for permits to construct be canceled, and the permit processing fees be returned to the applicant.

3-5 PERMIT APPLICATIONS CANCELED - APPLICANT'S DECISION

It is common practice among applicants to submit information that often changes the design or operating parameters of emission sources after submittal of permit applications to the AQMD. For example, applicants are known to change the total volume of coatings and solvents used in spray booths to a larger volume such that new, more efficient control equipment is required. In addition, applicants often submit revised replacement applications before, during, and after the engineering evaluation of their original applications.

What can the processing engineers do in cases where applicants change or revise their applications?

Applicants have been and will always continue to be the ultimate decision makers as to whether they want their application withdrawn or revised. None of the AQMD rules precludes applicants from requesting that the AQMD cancel or replace their permit applications. However, applicants may be required to pay permit processing fees based on the number of hours of work that has been completed. The permit processing fees may be returned to the applicant if the request is made before any engineering evaluation has been initiated. The AQMD may keep the permit processing fees if the request is made during or after the engineering evaluation.

3-5.1 PERMIT APPLICATIONS DENIED - PROCESSING ENGINEER'S RECOMMENDATION

The processing engineer may recommend that an application for a permit to construct or operate be denied if it is determined that the operation of the source violates any requirement of the AQMD rules and regulations, federal and state laws, or the Health and Safety code. The AQMD handles an application that is denied on this basis in the same manner as an application denied for insufficient information.

3-6 APPROVED PERMIT APPLICATIONS FOR PERMIT TO CONSTRUCT/OPERATE OR ISSUE A CERTIFIED EQUIPMENT PERMIT

The processing engineer uses the data provided by the applicant to determine the level of air contaminants emitted or controlled by the source. The engineer then uses these estimated levels of air contaminants to ascertain whether the operation of the source may be expected to comply with the requirements of applicable AQMD rules, federal and state laws, and the Health and Safety Code. Upon determination that the operation of the source complies with all applicable rules, the processing engineer then recommends a permit to construct or operate, usually with operating permit conditions. The unit supervisor reviews the engineer's report and either agrees with or amends the engineer's recommendations. The approved application package is then transferred to the permitting unit where a permit to construct or operate is issued and send to the applicant.

The responsibility of the Executive Officer or applicant to ensure that the source is operated in compliance with all rules and regulations does not cease after the issuance of the permit. The following sections describe these responsibilities with respect to operating permit conditions, temporary permits to operate, expiration of permits to construct, posting of permits to operate, altering or falsifying permits, and transferring of permits.

3-7 OPERATING PERMIT CONDITIONS

AQMD Rule 204 authorizes the Executive Officer to impose operating conditions on any permit to construct or operate to ensure that the source complies with all air pollution laws, rules, regulations and codes (AQMD, state, or federal). Furthermore, Rule 204 allows the Executive Officer to amend or add written operating permit conditions on any permit upon annual renewal. The Executive Officer notifies the applicant within 30 days before the amendment of the permit.

Operating permit conditions are important tools for the applicant and the Executive Officer. Operating permit conditions enable the Executive Officer to ensure that sources are operated in compliance with all applicable rules and regulations. These same permit conditions also help the applicant understand how the equipment may be operated without violating any applicable rules. The engineer, sometimes in consultation with the applicant, designs and imposes operating permit conditions on permits. These conditions usually reflect the maximum or actual operating conditions of the equipment. The applicant needs to understand the meaning of each permit condition before constructing or operating the equipment. Construction or operation of the equipment implies that the

applicant agrees with all the permit conditions. The applicant may file a request for hearing before the AQMD Hearing Board if there are any disagreements with the permit conditions as specified on the permit. AQMD Rule 216 requires the applicant to file the petition with the Clerk of the Board or a Deputy Clerk of the Hearing Board no later than ten days after the receipt of the permit by the applicant. Furthermore, Rule 216(a) requires the Hearing Board to start a public hearing within 30 days of its receipt of the petition. The Hearing Board may extend the start of the public hearing upon request by the involved parties. There are instances in which the applicant desires to operate the equipment pending the determination of an appeal of the permit conditions. In such cases, the applicant may operate the equipment only after obtaining a variance from AQMD Rule 203 from the Hearing Board.

In addition to the Executive Officer and business community, the general public also bears responsibility for clean air. The general public is responsible for ensuring that the Executive Officer faithfully executes his/her duties. The AQMD Governing Board has helped the public to carry out its responsibility by adopting Rule 216(b). Under this rule, any member of the general public who submits written comments or participates in the review by the Executive Officer, may appeal the Executive Officer's decision to the Hearing Board on the ground that: (i) the issuance of the permit violates AQMD rules or state laws; or (ii) the permit condition imposed on the permit does not ensure that the equipment will comply with AQMD rules or state laws. Rule 216(b) requires that the petitioner file the petition within ten days of the Executive Officer's decision.

3-7.1 TEMPORARY PERMIT TO OPERATE

An applicant can begin the construction or operation of equipment upon receipt of a permit to construct or operate from the Executive Officer, and the acceptance of permit conditions imposed on the permit. The life span of a permit to operate can be indefinite (subject to annual renewal), unless it is revoked, canceled or transferred to another person. A permit to construct, on the other hand, remains valid until it expires, is canceled or a permit to operate is issued or denied for the equipment. When, then, do permits to construct become temporary permits to operate? AQMD Rule 202 presents two cases where permits to construct serve as temporary permits to operate. In addition, Rule 202 shows a third case where an application for a permit to operate serves as a temporary permit to operate.

The first case presents a scenario where a permit to construct is granted for new equipment. In order for this permit to construct to serve as a temporary permit to operate, the applicant has to ensure that the: (i) permit to construct has not expired; (ii) construction has been completed; and (iii) the processing engineer has been notified either by telephone or in writing prior to the startup of the equipment. The second case presents a guideline for determining when a permit to construct granted to alter existing permitted equipment becomes a temporary permit to operate. In this case, the permit to construct immediately becomes a temporary permit to operate. However, the applicant is required by Rule 202(b) to notify the processing engineer when construction of the alteration is completed. In either the first or second case, the applicant must not operate the new or altered equipment in violation of conditions specified on the permit to construct.

Case Study:

Mr. Toddler has a 100,000-gallon gasoline tank in his facility. The tank was constructed in 1981 without a permit to construct. Mr. Toddler explained to a AQMD inspector on March 13, 1992 that the storage tank has been used to store gasoline with a Reid vapor pressure of 11 psia at a maximum storage temperature of 75°F since January 15, 1981. Furthermore, Mr. Toddler stated that an application for a permit to operate the storage tank was submitted to the AQMD on March 9, 1992. He wanted to know if he has violated any AQMD rules, and what he should do. This situation occurred before the Inspector could serve Mr. Toddler a Notice of Violation (NOV). This example presents the scenario described by AQMD Rule 202(c). Mr. Toddler's facility is in violation of AQMD Rule 201 because the tank was constructed without first receiving a permit to construct. The facility could have also been in violation of Rule 203 had Mr. Toddler not filed an application for a permit to operate the storage tank before the inspector's visit. Mr. Toddler is thus relieved from the requirement of Rule 203 by Rule 202(c). Rule 202(c) allows the applicant to use the submitted application as a temporary permit to operate until a permit to operate the equipment is issued or denied. Let us assume that the storage tank had a prior permit to operate and had not been altered, but that the permit was canceled because the annual renewal fee was not paid. Again, Rule 202(c) allows the application for a permit to operate to serve as a temporary permit to operate; however, Mr. Toddler would be required to operate the storage tank in accordance with the permit conditions specified on the previous permit to operate. Figure 2-3 summarizes the conditions under which an application may serve as a temporary permit to operate.

3-7.2 EXPIRATION OF PERMIT TO CONSTRUCT

A permit to construct has a life span of one year from the date of issuance unless: (i) the applicant has obtained written authorization from the Executive Officer which extends the life of the permit; or (ii) the construction of the alteration or new source has been completed, in which case the permit serves as a temporary permit to operate. The AQMD Governing Board adopted Rule 205 in January 9, 1976. The rule was later amended in January 5, 1990. The rule states that, "a permit to construct shall expire one year from the date of issuance unless extension of time has been approved in writing by the Executive Officer." Even though Rule 205 is concise and simple, it does not set criteria for extending the life span of a permit to construct. On February 21, 1992, the AQMD staff published a Rule 205 Implementation Plan to provide additional guidance in establishing the criteria under which a request to extend the life of a permit to construct may be granted or denied.

3-7.2.1. ACCEPTABLE REASONS FOR EXTENDING P/CS

Generally, requests for extensions are acceptable if it is demonstrated that continued progress has been made towards completion of the project and that the delays were beyond the control of the applicant. In addition, requests for extensions will be approved if the construction has been started and is on-going. Start of construction is being addressed in proposed amendments to Rule 201. For projects that have not started construction or that have started construction and the construction has been put on hold, the following reasons are acceptable for approving requests for extensions:

a. Multi-Year Project

The applicant must provide a construction schedule for those projects that are estimated to take more than one year to complete. When issuing Permits to Construct to these multi-year projects, the permit processing engineer will use the construction schedule to establish a permit condition identifying milestones or increments of progress towards completing the construction of the project. The applicant will be required to request an extension prior to each anniversary date and to prove that the project is meeting the increments of progress. Meeting the increments of progress will be one of the conditions the applicants have to meet before an extension is granted. Examples of facilities with multi-year construction

periods are refineries, resource recovery facilities, landfill operations, and power-plants.

Prior to extending P/Cs for existing multi-year projects, the engineer will make sure that increments of progress have been identified for the P/C's. For those permits that do not have these conditions, the applicant will be required to provide a construction schedule which will then be incorporated as increments of progress.

b. Delay in Other Agency Permitting Process

Delays in construction caused by another permitting agency will be approved if the time delay was due to that agency's permitting process. Delays due to a failure of the applicant to file the necessary applications or to provide the required information to another permitting agency in a timely manner, or delays due to the applicant appealing the other permitting agency's decisions in court are not acceptable. The applicant may be required to identify the agency causing the delays, the contact person so that the causes for the delays may be verified, and any other documents to support this claim.

c. Delay in Equipment Delivery

Delays caused by late equipment delivery beyond the applicant's control are acceptable. However, the applicant has to substantiate that the ordering of equipment was done in a timely manner.

d. Delay in Utility Hook-Ups

Delays caused by scheduling for utility hook-ups are acceptable if it is shown that the ordering was made in a timely manner.

e. Delay in Construction

The following reasons are acceptable, if the applicant can show that they are beyond the control of the applicant:

i. Strike;

ii. Natural disaster/accident;

iii. Contractor missing deadlines in their construction schedule; or

iv. Design changes required by equipment manufacturer.

f. Delays in Financing

A one-time extension for securing a loan for construction of the project will be allowed. This one-time extension is in addition to extensions granted for other reasons. No additional extension will be allowed for securing a loan.

g. Lawsuit

Delays caused by litigation involving the applicant and a third party are acceptable, provided that the applicant did not initiate the lawsuit.

-7.2.2. UNACCEPTABLE REASONS FOR EXTENDING PERMIT TO CONSTRUCT

Delays caused by intentional planning of the applicant are not acceptable. Examples of these cases are a change in economic prospect for the project, and a change in plan to install different equipment or to install the equipment at a later time.

Delays as a result of inaction of the applicant are not acceptable. For example, equipment was not ordered in a timely manner, and required information to facilitate other permitting processes was not provided. Also, in the case where construction has begun but completion of the project is put on hold due to a change of plan (e.g. economic considerations) or other circumstances within the applicant's control.

Extension will be granted for one-time only to allow for securing a loan.

No additional extensions will be granted for the same reason."[13]

3-8 POSTING OF PERMIT TO OPERATE

The Executive Officer ensures that the equipment descriptions and operating conditions are enforced after a permit is granted under AQMD Rule 202, 203, or any other AQMD rule. One of the enforcement tools at the disposal of the Executive Officer is AQMD Rule 206. This rule requires that an original or legible facsimile copy of the original permit be affixed to the equipment. The permit number, equipment descriptions, and operating conditions are required to be visible and accessible.

Rule 206 permits the original or legible facsimile copy of the original permit to be mounted within 8 meters of the equipment in cases where the permit describes more than one emission source, or the operation of the equipment prevents the permit to be affixed to the equipment. The permit, however, has to be visible and mounted in a location that is easily accessible or approved in writing by the Executive Officer.

3-8.1 ALTERING OR FALSIFYING OF PERMIT

AQMD Rule 207 states that, "A person shall not willfully deface, alter, forge, or falsify any permit issued under these rules." Violation of this rule can also result in enforcement action.

3-8.2 TRANSFER AND VOIDING OF PERMIT

A permit to construct or operate is an authorization to construct or operate specific equipment or a group of emission sources as described on the permit. The permit is granted to the legal owner or operator (permittee) of the equipment. AQMD Rule 209 authorizes the Executive Officer to deem a permit invalid if the:

- ownership of the permit is transferred to another person or group of persons;
- permit is transferred from one or a group of emission source to another; or
- permit unit is transferred from one location to another.

It is clear that any type of permit transfer invalidates the permit. Rule 209 declares mergers, name changes, or incorporations by an individual owner or partnership composed of individuals as a business transaction that does not constitute a permit transfer and should not nullify the permit. Rule 209 is not specific as to whether a name change that occurred because a company sells equipment to another corporation, individual, or partnership invalidates the permit. Table 3-1[14] lists different change of ownership activities that may or may not necessitate new permits.

Table 3-1: CHANGE OF OWNERSHIP

	Partnerships and Individual Owners	***Change***	***NO Change***
1.	*Change from individual ownership to partnership of four or more persons.*	✓	
2.	*Change from individual ownership to partnership of three or fewer person.*		✓
3.	*Individual ownership or partnership purchases equipment from another individual, partnership or corporation.*	✓	
4.	*Individual owner or partnership incorporates*	✓	
5.	*Individual owner or partnership changes name or business only.*		✓
6.	*A partnership with more than two partners is operating a business and the partnership loses one or more of the partners, and a partnership still exists.*		✓
7.	*Partnership of two or more partners obtains an additional partner or partners.*		✓
8.	*Partnership of three or fewer persons is dissolved by one partner dying, or otherwise leaving, and business continues to operation as an individual ownership*		✓
9.	*Man and wife operate a partnership and:*		
	(a) One dies		✓
	(b) They are divorced and one takes over operation as an individual owner.		✓
10.	*Individual owner or partnership sells all assets of business and it then becomes a subsidiary company to a corporation without change in name of subsidiary*	✓	
11.	*A trustee is operating a business and another trustee, for any reason, is appointed in his place.*		✓
12.	*Partnership of two persons substitutes one of the partners.*		✓
	Corporations		
1.	*Corporation sells equipment to another corporation, individual, or partnership.*	✓	
2.	*"A" Corporation builds a new plant and obtains permits. Plant is then leased to another corporation.*	✓	
3,	*Lessee in situation above gives up lease and Corporation "A" operates the same equipment*		✓
4.	*Corporation changes name but not corporate structure.*		✓
5.	*Individual sells 100% of stock in Corporation "A" to another corporation. Corporation "A" continues to operate with no change in structure. (Note that this is only a sale of stock and not equipment).*		✓
6.	*One corporation forms another corporation and equipment from old (but still existing) corporation is sold to the new corporation.*	✓	
7.	*The corporation selling the equipment to situation 6 above repurchases the equipment originally sold and resumes operation of that equipment.*		✓
8.	*A corporation merges with another corporation.*		✓
	Note: Only corporations can merge. Once they merge, the corporation can take either name and may continue to operate equipment without a new permit. A change in name permit can be issued without a fee.		

CHAPTER IV

PERMIT WORDING/EQUIPMENT DESCRIPTION

4.1 PRINCIPLES EMPLOYED IN DETERMINING PERMIT UNITS

Any discussion on these two related subjects, Permit Wording and Equipment Description must incorporate other subjects as well including permit unit boundaries, supplementary equipment, and appropriate words choice and style. Many of these discussions are extensive and are beyond the scope of this syllabus.

"Permit Unit" is the term for that equipment item or grouping of items functioning as a whole, which the District will allow to be included under a single permit application.

Permit units are of two types: "**Basic**" permit units and "**Control**" permit units. **Basic** implies that piece of equipment or grouping of equipment items functioning together for a common purpose to produce an end product and where emissions are released to the atmosphere. **Control** is any common system of equipment so designed and operated to mitigate emissions from basic equipment.

The following principles are employed in determining those equipment items which comprise one permit unit.

A. Groupings of Individual Items

A permit unit will include all equipment and appurtenances for the processing of bulk material which are united physically by conveyor, chute, pipe or hose for the movement of product material provided that no portion or item of the group will operate separately with product material not common to the group operation. Bulk material may be defined for these purposes as any material which is solid, in a granular like form and will be packaged or completed into a different and recognizable configuration. Such a grouping is considered as encompassing all the equipment used from the point of initial charging or feed to the point or points of discharge of material where such discharge will:

(1) be stored, or

(2) proceed to a separate process, or

(3) be physically separated from the equipment comprising the group.

B. Storage Equipment

Storage equipment is any tank, bin, vat, vessel or other device, employed to receive and hold any bulk material for future use. A storage vessel can be included with the permit unit from which it receives material if, the material is:

(1) the material is solid,

(2) received from only one permit unit, and

(3) physically united to the source permit unit by conveyor, chute, pipe or hose.

The storage vessel will be considered a separate permit unit if the material is being stored is:

(1) a liquid or a gas; or

(2) received from more than one source permit unit; or

(3) not united physically to the source permit unit.

C. Parallel Equipment

Individual equipment items, or grouping of items serving a parallel function, operated independently and not physically united for the flow of material will be considered as separate units.

D. Spare of Standby Equipment

1. Spare or standby equipment, which is a separate permit unit in itself (i.e., a boiler, a degreaser, a spray booth, a unit of air pollution control equipment, etc.) requires a separate permit regardless of how infrequently it may be used.

2. Spare or standby equipment, which is not a separate permit unit in itself (i.e.., a burner assembly, a fan assembly, a pump, etc..) does not require a separate permit. The purpose and

description of the standby items of equipment should be included in the permit unit it serves.

E. Combustion Equipment

Any device providing combustion of fuel (i.e., burner or burner assembly, radiant heating element, etc.) will be considered a component of the equipment it serves. In addition, any fired equipment that is part of a process handling bulk, solid material and where the products of combustion intermingle with the product, will be considered to be a part of the bulk material process system (e.g., cement kiln, aggregate dryer, etc.). Other fired equipment such as boilers, process heaters, curing ovens, internal combustion engines, etc., will be considered "stand-alone" permit units. Fired control equipment with no waste heat recovery such as afterburners, thermal oxidizers, and flares are always part of an air pollution control system. See Vapor Combustion Device example in Permit Wording for exceptions when heat recovery is employed.

F. Shared Equipment

Equipment which operates as a part of more than one permit unit, either alternately or simultaneously, is a part of each permit unit with which it is associated.

G. Block Flow Diagrams

The importance of simple block flow diagrams can not be overemphasized as a means to determine permit unit boundaries. The principles shown above become clear when the equipment and/or process is viewed in this format. The diagram also serves as a direct aid in writing the permit description and when estimating both the fugitive and the controlled emissions expected during actual operation of the proposed equipment. By way of example, see the block flow diagrams of coffee roasting and processing, rendering, and spray enclosures in the Permit Wording section.

H. Product Separators

Product Separators are devices specifically intended to strip product from a process or conveying stream. Usually these process streams involve solid products that are pneumatically conveyed or formed by the introduction of ambient air, and where that usable product must be removed before the air stream is returned to atmosphere. The devices

used as the product separators generally serve as control devices in other situations (i.e. baghouses, cyclones, etc.) and would be air pollution control equipment there. The intended use of the subject equipment must be determined to place it correctly into either a control system permit unit or in a basic equipment permit unit.

4.2 GUIDE FOR PERMIT WORDING

The system for wording permit descriptions was adopted to provide maximum flexibility for the varying types of equipment encountered, yet maintain a standardized approach to the process. Whether basic or control equipment, an individual item, or a complex system, the same sequence of terms is constantly used.

4.2.1 DESCRIPTION ORDER

The heart of the permit wording system is dependent upon a definite sequence of descriptive terms usually, but not always, set off from each other with commas. Each of the terms appearing in the sample given below is listed in the order in which it is to appear in the description.

NAME OF DEVICE, REFERENCE NUMBER, MATERIAL PROCESSED, MANUFACTURER'S NAME, TYPE, MODEL NUMBER, STYLE, SIZE, DIMENSIONS, SERIAL NUMBER, ENERGY INPUT AND HEATING METHOD, ACCESSORIES, PLANT OR EQUIPMENT ACCOUNTING NUMBER.

The following amplification of these terms shall be used to further define what information is to be included in the above format and how that information is to be presented. See "abbreviations" elsewhere in this publication for specific wording preferences. With minor exceptions, all permit unit descriptions are written in capital letters.

4.2.2 NAME OF THE DEVICE

If only one adjective is used to describe the item, the name may be preceded by the adjective, (e.g., spray booth, weigh tank, etc.). If more than one adjective is used, they follow the name, e.g., furnace, brass melting.

4.2.3 REFERENCE NUMBER OR NAME

The reference number or name is commonly used by the operating personnel to identify a specific piece of equipment from similar equipment. In a few plants, notably automotive assembly plants, a name or location is used for this purpose (e.g., undercoat oven, first color booth, bldg.4, etc.), and is still included in the permit wording.

4.2.4 MANUFACTURER'S NAME

The manufacturer's name is the name commonly used by industry, brief but enough to assure positive identification (i.e. DeVilbiss for Necomb-DeVilbiss Company; Kewanee for Kewanee Boiler Corporation; Fostoria for The Fostoria Pressed Steel Corporation).

4.2.5 TYPE

Type of equipment refers to any word or words that make the equipment description more complete. For example, water-wash, downdraft, floor, filterbench, and automotive are various types of spray booths, while Scotch marine, fire-tube, and water-tube are boiler types. These terms should be used in appropriate combinations to adequately describe the equipment.

4.2.6 MODEL

The manufacturer's model number or model designation.

4.2.7 STYLE

The manufacturer's style designation.

4.2.8 SIZE

The manufacturer's size designation.

4.2.9 DIMENSIONS

Normally, outside shell dimensions are given as width x length x height, except for the common open face spray booth. In this case, the dimensions are given as width x height x depth. When inside dimensions are used, they should be labeled as such. Almost all booth manufacturers give the inside dimensions. However, the one exception to this general rule is the automotive booth. Automotive booths use the normal width x length x height. Attached appurtenances, such as the additional height of a motor or fan assembly on top of an oven, is not considered. All dimensions are to be expressed as feet and inches (e.g., 3'-6" not 42").

4.2.10 SERIAL NUMBER

The serial number should be included only for equipment permitted to operate at "various locations".

4.2.11 ENERGY INPUT

Give the total energy input to the unit. Where applicable, "gas-fired", "oil-fired", "combination gas-or oil- fired" should be included. For fired equipment, the energy input should be based on the higher heating value (HHV) of the fuel to be burned. The ratings should not be abbreviated (i.e. do not use "mm" or "m" BTU per Hr.), but should be shown in its entirety.

4.2.12 STATE OR UNDERWRITER'S NUMBER

For boilers and heated pressure vessels only.

4.2.13 ACCESSORIES

The accessory description is very brief (e.g., with a 15-HP agitator). If, however, the description includes a make, model number, etc., the descriptive terms are put in the same sequence outlined above.

4.2.14 PLANT OR EQUIPMENT ACCOUNTING NUMBER

The number is enclosed in parentheses. When used, it is usually at the request of the applicant. Examples are APIN (Air Pollution Identification Number), HAC (Hughes Aircraft Corporation) Number; or an accounting number for tax purposes. Refineries use these numbers to not only locate and identify the item of equipment, but also to identify the process unit where the equipment is used.

This type of number is generally desirable where the piece of equipment can be moved within a plant or where there are several pieces of similar equipment. It must be included in the permit wording whenever requested by the applicant. Not all of these descriptive terms are used each time, just those that are applicable. When used for a single item of basic equipment or for spray booths, this system can be used just as listed above.

When two or more pieces of basic equipment comprise one permit unit, the wording will begin with the name of the process system, followed by the reference number, then the phrase “consisting of”, followed by a numerical listing of the items comprising the permit unit. Each item described follows the method outlined above, in an abbreviated form.

The same system is used to describe control equipment. The permit unit begins by identifying the equipment as air pollution control equipment. A single item permit unit is called an “Air Pollution Control (afterburner, adsorber, etc...)”, followed by the description ordered as shown above.

When more than one item comprises the control equipment permit unit, it is called an “Air Pollution Control System Consisting of ....”, followed by a numerical listing of the individual items of the permit unit. The hoods, blowers, ductwork, dampers, etc., are considered a single separate item and are identified under one heading and is designated as an exhaust system for venting the named basic equipment.

Uncontrolled exhaust systems venting basic equipment are separate permit units and are not included in the permit description of the basic equipment.

4.3 INDIVIDUAL ITEM PERMIT WORDING EXAMPLES

ABRASIVE BLASTING CABINET, ZERO, MODEL BNP-60-1, WITH A PRODUCT CYCLONE, 1'-6" DIA x 1'-9" H.

ABRASIVE BLASTING MACHINE, WHEELABRATOR, TUMBLAST, SIZE 86 x 42, 17 1/2-TOTAL HP. (APN 146).

BOILER, BABCOCK & WILCOX, FURNACE TYPE FM 103-97, 92,500,000 BTU PER HR., WITH A COEN MODEL 665 DAF 30, NATURAL GAS-FIRED, LOW NOx FRY COMPAK BURNER, WITH TWO 125-HP. COMBUSTION AIR BLOWERS, A 50 HP. FLUE GAS RECIRCULATION SYSTEM, AND AN ECONOMIZER.

CREMATORY, ALL CREMATORY CORPORATION, SELF-IN-LINE THREE CHAMBER TYPE, MODEL NO. 1701-A, WITH A 716,000 BTU PER HR. NATURAL GAS-FIRED BURNER IN THE CREMATION CHAMBER, A 14,000,000 BTU PER HOUR NATURAL GAS-FIRED BURNER IN THE MIXING CHAMBER, AND A 2-HP. COMBUSTION AIR BLOWER.

DEGREASER, NO.2, BRANSON, ULTRASONIC VAPOR SPRAY TYPE, MODEL NO.WSD1012R, 1'-3 1/4" W. X 2'-O" L. X 2'-9" D. (INSIDE DIMENSIONS), 5 KW ELECTRICALLY HEATED, WITH A 1/12-HP. SPRAY PUMP, AND A 3/4-HP. REFRIGERATED FREEBOARD CHILLER.

DRYER, ALUMINUM CHIP, STANDARD STEEL, ROTARY TYPE, 6'-O" DIA-x 50'-6" I-, 6,000,000 BTU PER HR. NATURAL GAS-FIRED, WITH A 5-HP. ELEVATOR AND A 3-HP. VIBRATING FEEDER.

FURNACE NO. 8, ALUMINUM MELTING, REVERBERATORY TYPE, 27,000-LB. CAPACITY, 12'-O" W. x 22'-4" L, x 12'-9" H., 7,000,000 BTU PER HR, COMBINATION NATURAL GAS-OR OIL-FIRED.

FURNACE, BRASS MELTING, INDUCTOTHERM, LINEMELT, MODEL 60, 5100-LB. CAPACITY, 600 KW ELECTRIC INDUCTION HEATED.

FURNACE, BRASS SMELTING, CAMPBELL-HAUSFELD, TILTING CRUCIBLE TYPE, 1200-LB. CAPACITY, 3'-3" DIA. x 4'-5" H., 1,000,000 BTU PER HR. NATURAL GAS-FIRED.

FURNACE, ZINC GALVANIZING, KETTLE TYPE, 4'-O" W. x 42'-O" L x 6'-O" H. INSIDE DIMENSIONS, 600,000 BTU PER HR. NATURAL GAS-FIRED.

FURNACE, IRON MELTING, WHITING, CUPOLA TYPE, SIZE NO. 4,3'-6" I.D., 15,000,000 BTU PER HR., WITH A 5-HP. CHARGING BUCKET AND A 20-HP. COMBUSTION BLOWER.

FURNACE NO. 1, IRON MELTING, STROMAN, REVERBERATORY TYPE, MODEL R, 4000-LB. CAPACITY, 5,000,000 BTU PER HR.. COMBINATION NATURAL GAS-OR OIL-FIRED.

FURNACE, ALUMINUM SWEATING, REVERBERATORY TYPE, 7'-O" W. x 15'-7" L. x 9'-O" H., 6,000,000 BTU PER HR.. NATURAL GAS-FIRED.

FURNACE LEAD MELTING, NOLAN, POT TYPE, 10,000-LB. CAPACITY, 412,500 BTU PER HR.. NATURAL GAS-FIRED.

FURNACE, LEAD SWEATING, ROTARY TYPE, 5'-O" DIA. x 9'-O" L, 1,000,000 BTU PER HR., NATURAL GAS-FIRED.

FURNACE, STEEL MELTING, AJAX-NORTHROP, TILTING CRUCIBLE TYPE, MODEL NO. A-N 2,500-LB, CAPACITY, 400 KW ELECTRIC INDUCTION HEATED.

FURNACE, STEEL MELTING, WHITING, 3-ELECTRODE DIRECT ARC TYPE, MODEL 12MT., 12,000-LB. CAPACITY, 2,000 KW.

INTERNAL COMBUSTION ENGINE, CATERPILLAR, SPARK IGNITION, FOUR-STROKE CYCLE, TURBOCHARGED-INTERCOOLED, LEAN BURN, 12-CYLINDER, V-TYPE, MODEL 3412,675-HP., NATURAL GAS OR LPG-FIRED, WITH A HOUSTON SILENCING NON-SELECTIVE CATALYTIC REACTOR, DRIVING AN EMERGENCY ELECTRICAL GENERATOR.

INTERNAL COMBUSTION ENGINE, CATERPILLAR, COMPRESSION IGNITION, FOUR-STROKE CYCLE, TURBOCHARGED-INTERCOOLED, LEAN BURN, 16-CYLINDER, V-TYPE, MODEL 3516, 2148-HP., DIESEL FUEL-FIRED, DRIVING A 1250 KW ELECTRICAL GENERATOR.

OVEN, CORE BAKING, BARON, MODEL AA, 5'-0" W. x 12'-0" L x 6'-0" H., 550,000 BTU PER HR. NATURAL GAS-FIRED, WITH A 2-HP. CIRCULATING BLOWER AND A 1/2 HP. EXHAUST FAN.

STERILIZER, NO. 1, ETHYLENE OXIDE GAS, AMSCO, MODEL EAGLE 3000 SERIES 3028,1'-8" W. x l'-8" L. x 3'-2" H., STEAM-HEATED, WITH A 1/2 HP EXHAUST BLOWER

SYNTHETIC SOLVENT DRY CLEANING UNIT, FLUORMATIC, MODEL BT 37, WITH A BUILT IN REFRIGERATED VAPOR CONDENSER.

4.3.1 MULTIPLE ITEM PERMIT WORDING EXAMPLES

BERYLLIUM GRINDING SYSTEM CONSISTING OF:

1. NINE SURFACE GRINDERS, HARIG AUTOSTEP, 3-HP.
2. BAGHOUSE, FABRICMAX, MODEL FJC1604, CONTINUOUS DUTY, WITH SIXTEEN FILTER CARTRIDGES, 3616 SQ. Fr. FILTER AREA, REVERSE PULSE CLEANED.
3. AFTERFILTER, P.T.S. INDUSTRIES, MODEL 2X2 3PGP, WITH FOUR 2'-0"W x 2'-0"H x 1'-0"D HEPA FILTERS, AND FOUR 2'-0"W x 2'-0"H x 1' -0"D 30/30 PRE-FILTERS, 70.4 SQ. FT. FILTER AREA.
4. EXHAUST SYSTEM WITH A 5-HP. BLOWER VENTING NINE SURFACE GRINDERS.

COGENERATION SYSTEM CONSISTING OF:

1. GAS TURBINE, GENERAL ELECTRIC, LM2500-33, 228,999,000 BTU PER HR., NATURAL GAS OR FUEL OIL-FIRED, WITH A WATER INJECTION SYSTEM, DRIVING A 22.35 MW ELECTRICAL GENERATOR.

2. BOILER, NOOTER, WASTE HEAT RECOVERY, UNFIRED, PRODUCING 66745 POUNDS SUPERHEATED STEAM AT 600 PSIG PER HR., 7800 POUNDS SATURATED STEAM AT 150 PSIG PER HR., AND 7090 POUNDS OF SATURATED STEAM AT 5 PSIG PER HR.

3. STEAM TURBINE, CONDENSING-EXTRACTION TYPE, DRIVING A 6.4 MW ELECTRICAL GENERATOR.

CRUDE OIL, WATER, GAS SEPARATION SYSTEM CONSISTING OF:

1. GAS-SEPARATOR, FIXED ROOF TYPE, 33 BARREL CAPACITY, 1'- 6" DIA x 26'-0"H., VENTED TO A VAPOR RECOVERY SYSTEM

2. WASH TANK, NO. T-01, FIXED ROOF TYPE, 400 BARREL CAPACITY, 12'-0" DIA x 28'-0" H., VENTED TO A VAPOR RECOVERY SYSTEM

3. TANK NO. T-02, CRUDE OIL, SHIPPING, 750 BARREL CAPACITY, 15'-6" DIA X 24'-0" H., VENTED TO A VAPOR RECOVERY SYSTEM

4. TWO PUMPS, SHIPPING, CENTRIFUGAL TYPE, ONE 15-HP. AND ONE 15-HP. STANDBY

5. PUMP, PIT, BALDOR ELECTRIC, CENTRIFUGAL TYPE, 3/4-HP.

6. PUMP, WATER, CENTRIFUGAL TYPE, MECHANICAL SEAL

7. LEASE AUTOMATIC TRANSFER UNIT (LACT).

ELECTROPLATING LINE CONSISTING OF:

1. TANK, NO. 300, SURFACE PREPARATION, HYDROCHLORIC ACID, 2'-0" W. x 2'-0" L x 2'-0" D.

2. TANK, NO. 308, SURFACE PREPARATION, SULFURIC ACID, 2'-0" W. x 2'-0" L x 2'-0" D.

3. TANK, NO. 309, COPPER PLATING, SULFURIC ACID, 2'-0" W. x 2'-0"L. x 2'-0" D., WITH A 12 KVA RECTIFIER AND A 2 KVA ELECTRIC HEATER.

4. TANK NO. 312, SURFACE PREPARATION, SULFURIC ACID, 2'-0" W. x 2'-0" L. x 2'-0" D.

5. TANK NO. 315, NICKEL PLATING, HYDROCHLORIC ACID, 2'-0" W. x 2'-0" L. x 2'-0" D., WITH A 12 KVA RECTIFIER AND A 4 KVA ELECTRIC HEATER.

6. TANK NO. 316, NICKEL PLATING, BORIC ACID, 2'-O" W. x 2'-O" L x 2'- 0" D., WITH A 12 KVA RECTIFIER.

7. TANK NO. 328, SURFACE PREPARATION, SULFURIC ACID, 2'-0" W. x 2'-0" L. x 2'-0" D.

8. TANK, NO. 329, TIN PLATING, SULFURIC ACID, 2'-O" W. x 2'-O" L. x 2'-0" D., WITH A 12 KVA RECTIFIER.

9. ASSOCIATED CAUSTIC AND RINSE TANKS.

FLEXOGRAPHIC PRINTING LINE, NO. W001, CONSISTING OF:

1. FLEXOGRAPHIC PRINTING PRESS, WEBTRON, MODEL 650, 1-COLOR 6-1/2" WEB FED, 7 TOTAL HP.

2. DRYER, INFRA RED, MAN ROLAND, 3'-4" W. x 5'-0" L. x 0'-6" H., 36 KW ELECTRICALLY HEATED.

SAND HANDLING SYSTEM CONSISTING OF:

1. TWO SHAKEOUT GRATES, EACH 2'-0" W. x 7'-0" L.

2. DRYER, ROTO-LOUVRE, 5'-0" DIA. x 40'-0" L., 3,000,000 BTU PER HR. NATURAL GAS-FIRED.

3. TWO MIXERS, EACH SIMPSON, MULLER TYPE, SIZE 2 VD, 15 HP.

4. SAND STORAGE BIN, 50-TON CAPACITY.

5. THREE BELT CONVEYORS, EACH 3 HP.

6. TWO BUCKET ELEVATORS, 5 HP. AND 7-1/2 HP.

SAND HANDLING SYSTEM CONSISTING OF:

1. MOLD SHAKEOUT MACHINE, 5'-0" W. x 8'-0" L., 15 HP.

2. MAGNETIC SEPARATOR, 2 HP.

3. VIBRATING SCREEN, 4'-0" W. x 9'-6" L., 3 HP.

4. FEEDER, VIBRATING TYPE, AJAX, 2 HP.

5. BIN, MIXER FEED, 30-TON CAPACITY.

6. MIXER, BEARDSLEY AND PIPER, SPEEDMULLER, MODEL 50, 40 HP.

7. HAMMER MILL, NATIONAL ENGINEERING, MODEL 7,15 HP.

8. VIBRATING SCREEN, 3 HP.

9. SURGE BIN, ROTATING SANDSLINGER FEED, 10-TON CAPACITY.

10. TWO AERATORS, EACH 5 HP.

11. SANDSLINGER, BEARDSLEY AND PIPER, 40 HP.

12. SURGE BIN, SAND SCRUBBER FEED, 30-TON CAPACITY.

13. SAND SCRUBBER, NATIONAL ENGINEERING COMPANY, WITH A 60-HP. BLOWER.

14. SURGE BIN, RECLAIMED SAND, 15-TON CAPACITY, 7'-0" DIA. X 8,-0" H.

15. SURGE BIN, RECLAIMED SAND, 20-TON CAPACITY, 7’-0" DIA. X 10'-0" H.

16. BIN, NEW SAND, 80-TON CAPACITY, 8'-0" DIA. X 12'-0" H.

17. MIXER, SIMPSON, MULLER TYPE, SIZE 2, 30 HP.

18. AERATOR, 3 HP.

19. SIX MOLDING BINS, EACH 3'-0" DIA X 2'-0" H.

20. ELEVEN BELT CONVEYORS, FOUR 3 HP., THREE 2 HP., THREE 5 HP. AND ONE 1 1/2 HP.

21. FOUR BUCKET ELEVATORS, TWO 10 HP. AND TWO 5 HP.

SOIL VAPOR EXTRACTION AND TREATMENT SYSTEM CONSISTING OF:

1. VAPOR EXTRACTION WELLS

2. WATER KNOCKOUT TRAP, 55 GALLON CAPACITY

3. EXTRACTION BLOWER, LAMSON TURBOTRON, MODEL NO. 7X40, FORCED DRAFT, 40 HP

4. REGENERATIVE THERMAL OXIDIZER, AIREX, MODEL RETOX 600 HIGH TEMPERATURE, 24 KW ELECTRICALLY HEATED SILICA GRAVEL BED COMBUSTION CHAMBER, AUTOMATIC FULLY-MODULATED TEMPERATURE CONTROL AND GAS BI-DIRECTIONAL FLOW CONTROL SYSTEM, A CATALYTIC POD, AND A 2-HP. AIR COMPRESSOR.

SYNTHETIC SOLVENT DRY CLEANING FACILITY CONSISTING OF:

A. DRY CLEANING SYSTEM CONSISTING OF:

1. DRY CLEANING, MARVEL, MODEL DD30.

2. RECLAIM TUMBLER, VIC, MODEL 24A.

3. FILTER, MAGIC FLOW, MODEL MF14.

4. MUCK COOKER.

B. AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. SOLVATION UNIT, DIVERSITRON, MODEL 1022-53.

2. EXHAUST SYSTEM VENTING ITEMS ONE AND TWO OF THE DRY CLEANING SYSTEM.

SYNTHETIC SOLVENT DRY CLEANING FACILITY CONSISTING OF:

A. DRY CLEANING UNIT, MULTIMATIC, MODEL 25.

B. AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. VAPOR CONDENSER, KLEENRITE, KRII.

2. EXHAUST SYSTEM VENNNG ONE DRY CLEANING EQUIPMENT SOURCE.

ZINC OXIDE BENEFICATION SYSTEM CONSISTING OF:

1. MIX TANK, 4'-0" W. x 5'-0" L x 5'-0" H., WITH A 15-HP. MIXER AND A 3-HP. PUMP.

2. ROTARY SCREEN, 3'-0" DIA. x 4'-0" L., 1 HP.

3. LEACH TANK 8'-10" DIA. x 8'-0" H., 1,000,000 BTU PER HR., NATURAL GAS-FIRED, WITH A 5-HP. MIXER AND A 3-HP. PUMP.

4. SURGE TANK 8'-0" DIA. x 8'-0" H., WITH A 5-HP. MIXER.

5. DRUM FILTER, OLIVER, 3'-0" DIA. x 4'-0" L, WITH A 5-HP. VACUUM PUMP AND TWO 1-HP. FILTRATE PUMPS.

6. ROTARY KILN, STANDARD STEEL, 6'-0" DIA. x 60'-0" L., 6,000,000 BTU PER HR., NATURAL GAS-FIRED, 5-HP.

7. TWO SCREW FEEDERS, 3 HP. AND 1-1/2 HP.

8. DRAG CONVEYOR, 81-1/2 HP.

4.4 ALTERATION OF BASIC PERMIT UNIT

When an alteration is proposed for a system which has previously been granted a permit to operate, the equipment description for the permit to construct should identify the previous permit number and the changes to be made. Typical examples of alteration wording are:

ALTERATION OF A SAND HANDLING SYSTEM, PERMIT NO. P-1000, BY THE REMOVAL OF:

1. MAGNETIC SEPARATOR, 2 HP.

2. FEEDER, VIBRATING TYPE, AJAX, 2 HP.

AND THE ADDITION OF:

1. MOLD SHAKEOUT MACHINE, 5'-0" W. x 8'-0" L., 15 HP.

2. AERATOR, 5 HP.

4.5 CONTROL EQUIPMENT

Permit wording for control equipment follow the same sequence described previously. Exceptions are shown below.

TYPICAL SPRAY BOOTH PERMIT WORDING

SPRAY BOOTH, REFERENCE NUMBER, MANUFACTURE'S NAME, (enter as many of the following as applicable: AUTOMOTIVE, FLOOR, BENCH, DOWNDRAFT), (enter one of the following as applicable: WATER-WASH TYPE or FILTER TYPE), MODEL NUMBER, DIMENSIONS, ENERGY INPUT, ACCESSORIES, PLANT OR EQUIPMENT NUMBER.

<u>EXAMPLES OF SPRAY BOOTH PERMIT WORDING:</u>

SPRAY BOOTH, DEVILBISS, FLOOR, WATER-WASH TYPE, MODEL PE 4-7-T, SIZE 2, 7'-6" W. x 7'-0" H. x 5'-6" D., WITH A 5-HP. EXHAUST FAN AND A WATER RECIRCULATION PUMP.

SPRAY BOOTH, SPRAYKING, AUTOMOTIVE, FILTER TYPE, MODEL 55 ETT, 12'-6" W. x 25'-6" L. X 10'-3" H., WITH A 10-HP. EXHAUST FAN AND AN AIR HEATER, COLEMAN, MODEL 30 XL, 400,000 BTU PER HR. NATURAL GAS-FIRED.

<u>EXAMPLES OF OTHER CONTROL EQUIPMENT PERMIT WORDING:</u>

AIR POLLUTION CONTROL AFTERBURNER, 3'-6" DIA. x 12'-6" H., 3,000,000 BTU PER HR.. NATURAL GAS-FIRED, VENTING TWO CORE BAKING OVENS.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. BAGHOUSE, KELCO, MODEL J-2, WITH 25 FILTER BAGS, EACH 4" DIA X 6"-0" L, AND A MANUAL SHAKER. SPRAY BOOTH, REFERENCE NUMBER, MANUFACTURER'S NAME 2. EXHAUST SYSTEM WITH A 3-HP. BLOWER VENTING AN ABRASIVE BLASTING CABINET.

AIR POLLUTION CONTROL SYSTEM NO. 1 CONSISTING OF:

1. BAGHOUSE, NORBLO, SERIES 54, SIZE 432-A, WITH 480 FILTER BAGS, EACH 6" DIA X 8'-0" L, AND A 3-HP. ROTARY DISCHARGE VALVE AND A SCREW CONVEYOR.

2. CYCLONE, NORBLO, TYPE 25, SIZE 8.5, 8'-6" DIA. x 18'-6" H., WITH A 1/3-HP. ROTARY DISCHARGE VALVE.

3. EXHAUST SYSTEM WITH A 20-HP. BLOWER VENTING A ROTARY KILN.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. SCRUBBER, AMERICAN AIR FILTER, ROTO-CLONE, TYPE N, SIZE NO. 8, ARRANGEMENT C, DESIGN NO. 4.

2. EXHAUST SYSTEM WITH A 20-HP. BLOWER VENTING FIFTEEN SHAKEOUT STATIONS, TWO CONVEYOR TRANSFER POINTS, A VIBRATORY SCREEN, A BUCKET ELEVATOR, AND ONE MIXER.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. ELECTRIC PRECIPITATOR, WESTERN PRECIPITATION, COTTRELL TYPE, 75 KV/25 KW.

2. THREE CARBON MONOXIDE IGNITION BURNERS, EACH 250,000 BTU PER HR. NATURAL GAS-FIRED, LOCATED IN CUPOLA NO. 1.

3. THREE CARBON MONOXIDE IGNITION BURNERS, EACH 300,000 BTU PER HR. NATURAL GAS-FIRED, LOCATED IN CUPOLA NO. 2.

4. QUENCH CHAMBER, 8'-0" DIA. x 28'-0" H., WITH A WATER CIRCULATION PUMP.

5. EXHAUST SYSTEM WITH A 50-HP. BLOWER VENTING TWO CUPOLA FURNACES.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. SCRUBBER, NIEHAUSE, MODEL B, WITH A 7-1/2 HP. RECIRCULATION PUMP AND A 10 HP. STANDBY RECIRCULATION PUMP.

2. EXHAUST SYSTEM WITH A 5-HP. BLOWER VENTING A CHROME PLATING TANK.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1 BAGHOUSE, HARSELL, SIZE 7-48, WITH 336 FIBERGLASS BAGS, EACH 11 1/2" DIA. x 22'-6" L., AND SEVEN 1/2-HP. SHAKERS.

2. AFTERBURNER, 7'-0" I.D. x 60'-0" H., 4,000,000 BTU PER HR.. NATURAL GAS-FIRED.

3. QUENCH CHAMBER, 10'-0" I.D. x 43'-0" H., WITH A WATER PUMP.

4. EXHAUST SYSTEM WITH A 130-HP. BLOWER VENTING A CUPOLA FURNACE.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. BAGHOUSE, PANGBORN, TYPE CH, SIZE NO. 623, WITH 50 ENVELOPE TYPE FILTER BAGS, EACH 2'0" W. X 3'0" 1, AND THREE 1-HP. SHAKERS.

2. EXHAUST SYSTEM WITH A 15-HP. BLOWER VENTING AN ABRASIVE BLASTING MACHINE, ONE ABRASIVE

BLASTING ROOM, THREE DOUBLE-END GRINDERS, AND A TUMBLING BARREL

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. INERTIA SCRUBBER, AMERICAN AIR FILTER, ROTO-CLONE, TYPE W.

2. EXHAUST SYSTEM WITH A 25 HP. BLOWER VENTING AN ABRASIVE BLASTING MACHINE A ONE SHOT PEEN ROOM.

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. REACTOR, HITACHI-AMERICA, SELECTIVE CATALYTIC REACTOR, 11'-2" W. x 24'-11" L. x 9'-11" H., WITH 621.5 CUBIC FEET OF PLATE-TYPE CATALYST.

2. REACTOR, ENGELHARD, CARBON MONOXIDE OXIDATION CATALYST, 12'-0'W. x 22'-8" L., FRAME-HELD, WITH 70 CUBIC FEET OF HONEYCOMB-TYPE CATALYST.

3. AMMONIA INJECTION SYSTEM, BABCOCK-HITACHI K.K.

4. ANHYDROUS AMMONIA STORAGE AND VAPORIZATION SYSTEM.

<u>ALTERATION OF AIR POLLUTION CONTROL PERMIT UNIT WORDING</u>

ALTERATION OF AN AIR POLLUTION CONTROL SYSTEM, PERMIT NO. P-1000, BY THE REMOVAL OF VENTING FROM:

1. ABRASIVE BLASTING MACHINE.

2. TUMBLER.

AND THE ADDITIONAL VENTING OF:

1. TWO GRINDERS.

2. SHAKEOUT.

4.6 ABBREVIATIONS

To promote concise, easily read EQUIPMENT DESCRIPTIONS, the use of uniform terminology should be used. For purposes of standardization, the following list of words and abbreviations are written as indicated below.

USE	DO NOT USE
BARREL	bbi., or bbls.
CAPACITY	cap.
CU. FT.	cubic foot, or feet
CU. YD.	cubic yard, or yards
D.	depth, deep
DIA.	diameter
‘, “	feet, inches
GALLON	gal., or gals.
H.	height, high
HR.	hour
HP.	horsepower
L.	length, long
LB., LBS.	pound, pounds
MW, KW	megawatts, kilowatts
NO.	#, number
NOS.	#s, numbers
PER	/
SERIAL NO.	serial #, Ser. #
SQ.FT.	square foot, or feet
SQ.IN.	square inch, or inches
W.	wide, width

4.7 PERMIT UNIT EXAMPLES

Examples in the rest of this chapter are in alpabetical order by equipment name.

ABRASIVE CLEANING OR PEENING

Abrasive cleaning involves the removal of scale, dirt, paint or other adherent material from the surface of articles by means of a forcibly impelled stream of abrasive material. Peening involves surface preparation and surface hardening by means of a forcibly impelled stream of steel shot.

These types of operations involve the processing of product material as units rather than as bulk. Therefore, each permit unit requires a separate

permit. Detailed below are typical permit unit groupings associated with abrasive cleaning and peening.*

1. Each separate blasting booth, cabinet, machine or room, together with its associated abrasive supply and handling equipment, blast or impeller equipment and compressed air supply equipment.**

2. Each air pollution control system (see applicable control instructions, e.g., Air Pollution Control System, Filter, Cloth, Dust Collector, etc.).

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* Abrasive blast cabinet-dust filter integral combination units where the total internal volume of the blast section is 53 cubic feet or less do not require a permit.

** Compressors are included in the permit unit only when they are dedicated to the subject abrasive blasting system. Shop air systems supplying compressed air are not included. Such equipment is a separate permit unit which does not require a Permit to Construct Or a Permit to Operate.

AIR POLLUTION CONTROL SYSTEM
(ACTIVATED CARBON ADSORPTION)

Activated carbon adsorption is a means by which vapors and gases can be removed from a gas stream by being preferentially collected in the pores, interstices and upon the surfaces of activated carbon. Regeneration of the carbon and recovery of the adsorbed material is accomplished by forcing saturated steam through the carbon or by heating the carbon in specialized furnaces usually located away from the facility where the absorber is in use. Detailed below are the typical permit unit groupings associated with activated carbon adsorption. Each permit unit requires a separate permit.

1 Each air pollution control system* with its adsorption unit, starting with the exhaust hood or hoods and ending at the storage tank or tanks**, consisting of the hoods, ductwork, fans, precleaners, adsorption drums or vessels, condensate cooler, and condensate decanter.

2 Each storage tank or container (see applicable basic equipment instructions, Storage Tank).

3 Each boiler (see applicable basic equipment instructions, Boiler).

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* An air pollution control system permit unit grouping may include one or more collection or separation devices. Each permit unit grouping will end with any collection or separation device which discharges to the atmosphere.

** Each tank which is used to store liquids or gases is an individual permit unit requiring a separate permit.

AIR POLLUTION CONTROL SYSTEM
(AIR FILTER)

Air filters consist of pads or frames containing fibrous material or other filter media. One or more air filters and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each permit unit requires a separate permit.

1 Each air pollution* control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, and collection or separation device** and filter pad framework and pads.***

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* Passive systems such as filter vents, without induced draft fans, are generally considered to be part of the basic equipment permit unit. In this case, the material collected must be returned to the same device from which it was collected or to a similar device if more than one piece of equipment is served by the filter.

** Passive systems such as filter vents, without induced draft fans, are generally considered to be part of the basic equipment permit unit. In this case, the material collected must be returned to the same device from which it was collected or to a similar device if more than one piece of equipment is served by the filter.

*** The intended use of the collection or separation device may be for product separation and, therefore, should be part of a larger basic equipment permit unit. See Section 4.1, subparagraph H for additional discussion.

AIR POLLUTION CONTROL SYSTEM
CENTRIFUGAL SEPARATOR (INERTIAL SEPARATOR)

Centrifugal and inertial separators are devices in which particulate matter suspended in a gas stream is separated from the conveying gas stream by abrupt directional change. One or more centrifugal separators and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each permit unit requires a separate permit.

1. Each air pollution control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, any collection or separation device not venting to the atmosphere* and the centrifugal separator** venting to the atmosphere.

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* The air pollution control system permit unit grouping may include one or more collection or separation devices. The permit unit grouping will end with any collection or separation device which discharges to the atmosphere.

** The intended use of the collection or separation device may be for product separation and, therefore, should be part of a larger basic equipment permit unit. See Section 4.1 subparagraph H for additional discussion.

AIR POLLUTION CONTROL SYSTEM
(ELECTRICAL PRECIPITATOR)

Electrical precipitators create an electrostatic field through which gases containing particulate matter are passed. The particles acquire an electrical charge and migrate under the action of the field to collection surfaces. ,One or more electrical precipitators and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each permit unit requires a separate permit.

1 Each air pollution control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, any collection or separation device not venting to the atmosphere* and the precipitator venting to the atmosphere.

* An air pollution control system permit unit grouping may include one or more collection or separation devices. The permit unit grouping will end with any collection or separation device which discharges to the atmosphere.

AIR POLLUTION CONTROL SYSTEM (FILTER CLOTH DUST COLLECTOR)

Filter cloth dust collectors contain cloth tubes, envelopes or bags through which dust or fume laden gas is passed to filter out the dust or fume from the gas. One or more filter cloth collectors and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each-permit unit requires a separate permit.

1 Each air pollution control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, any collection or separation device not venting to the atmosphere* and the filter cloth dust collector venting to the atmosphere.**

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* An air pollution control system permit unit grouping may include one or more collection or separation devices. The permit unit grouping will end with any collection or separation device which discharges to the atmosphere.

** The intended use of the collection or separation device may be for product separation and, therefore, should be part of a larger basic equipment permit unit. See Section 4.1, subparagraph H for additional discussion.

AIR POLLUTION CONTROL SYSTEM (SCRUBBER)

Scrubbers are devices in which a liquid is employed to achieve, or assist in the removal of air contaminants from a gas stream. One or more scrubbers and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each permit unit requires a separate permit.

1. Each air pollution control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, any collection or separation device not venting to the atmosphere* and the scrubber discharging to the atmosphere.

* An air pollution control system permit unit grouping may include one or more collection or separation devices. 'The permit unit grouping will with any collection or separation device which discharges to the atmosphere.

AIR POLLUTION CONTROL SYSTEM (SELECTIVE CATALYTIC REACTOR)

Selective catalytic reactors are devices in which a solid material catalyst bed provides contact with an ammonia injected effluent stream for the purpose of reducing oxides of nitrogen emissions. One or more catalyst beds* and the common exhaust system comprise a permit unit. Detailed below is a typical permit unit grouping associated with such an air pollution control system. Each permit unit requires a separate permit.

1. Each air pollution control system, starting with all air intakes into the exhaust system and ending at the vent discharging to the atmosphere, consisting of hoods, ducting, dampers, fans, motors, any collection or separation device not venting to the atmosphere**, any catalyst bed, anhydrous ammonia storage tank, and ammonia atomization and injection equipment.

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* Many applications of selective catalytic reactors will also incorporate beds to effect control of carbon monoxide.

** An air pollution control system permit unit grouping may include one or more collection or separation devices. The permit unit grouping will end with any collection or separation device which discharges to the atmosphere.

ASPHALT PRODUCTION, BLOWN

Blown asphalt production involves the polymerization by dehydrogenation of heavy petroleum fractions using heat and air. Detailed below are typical permit unit groupings associated with blown asphalt production. Each permit unit requires a separate permit.*

1. Each blown asphalt production unit, starting with charge pumps and ending at the point or points of discharge to storage, consisting of blowing still, heat exchangers, condensers, coolers, blowers and permit exempt heaters.**

2. Each boiler (see applicable basic equipment instructions, Boiler).**

3. Each air pollution control system (see applicable control equipment instructions, e.g., Waste or Emergency Gas Disposal, etc.).

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* The storage of unheated asphalt is exempt and does not require a permit.

** Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

ASPHALTIC CONCRETE BATCHING

Asphaltic concrete batching involves the drying and heating of aggregate; screening, proportioning, weighing and mixing the dried aggregate with heated asphalt. Detailed below are typical permit unit groupings associated with asphaltic concrete batching. Each permit unit requires a separate permit.*

1. Each batching plant, starting with the aggregate feed and ending with the batched product the system is designed for, consisting of the aggregate handling system, rotary drier with burner assemblies, mixer, screening equipment, hoppers, conveyors, elevators, mills, pumps, asphaltic measuring and charging equipment and appurtenances.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control -System - Filter Cloth Dust Collector, Electrical Precipitator, etc.).
3. Each boiler (see applicable basic equipment instructions, Boiler).**

4. Each asphaltic cement storage tank (see applicable basic equipment instructions, Storage Tank).*

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* The storage of unheated asphalt is exempt and does not require a permit.

** Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

BOILER

A boiler contains a combustion chamber in which heat from an open or radiant flame is utilized to generate vapor within a confined system. Such equipment* may consist of the following groupings of devices or mechanisms comprising a permit unit. Each permit unit requires a separate permit.

1. Each boiler consisting of shell, furnace or heater firebox, chimney or stack flues and bleaching, burners, superheater, heaters, oil preheaters, economizers, pumps, fans, soot blowers, gages, controls, fittings and appurtenances, traps, strainers, flue gas recirculation, selective non-catalytic reactor, and individual fuel supply system except fuel storage tanks.**

2. Each fuel storage tank (see applicable basic equipment instructions, Storage Tank).***

3. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Selective Catalytic Reactor).

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* If also used as a vapor combustion device, see Boiler Used as a Vapor Combustion Device, next page.

** Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU /HR , calculated at the higher beating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

*** Certain fuel storage tanks are exempt from permit requirements. All other fuel oil tanks are permit units as detailed under Storage Tank.

BOILER USED AS A VAPOR COMBUSTION DEVICE

A boiler used as vapor combustion device may consist of the following grouping of devices or mechanisms comprising a permit unit. Each permit unit requires a separate permit.

1. Each boiler consisting of shell, furnace, or heater firebox, chimney or stack flues and breaching, burners, superheater, heaters, oil reheaters, economizers, pumps, fans, soot blowers, gages, controls, fittings and appurtenances, traps, strainers, flue gas recirculation, selective non-catalytic reactor, vapor gathering system, and individual fuel supply system except fuel storage tanks.

2. Each fuel storage tank (see applicable basic equipment instructions, Storage Tank). *

* Certain fuel storage tanks are exempt from permit requirements. All other fuel oil tanks are permit units as detailed under Storage Tank.

BULK LIQUID OR GASEOUS MATERIAL TRANSFERRING

Bulk liquid or gaseous material transferring involves equipment used to transfer bulk liquid or gaseous materials from vehicles, ships, or storage vessels into other vehicles, ships, or storage vessels. Detailed below are typical permit unit groupings associated with bulk liquid or gaseous material transferring. Each permit unit requires a separate permit.

1. Each bulk liquid or gaseous transferring system, starting at the outlet of any storage vessel, vehicle or ship from which the bulk liquid or gaseous material is being transferred and ending at the point or points of discharge into other storage vessels, vehicles or ships, consisting of piping, conveyors, valves, hoses, metering or weighing devices, pumps, air eliminators and strainers.

2. Each storage tank (see applicable basic equipment instructions, Storage Tank).

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

BULK, SOLID MATERIAL TRANSFERRING AND STORAGE

Bulk solid material transferring and storage involves equipment used to transfer bulk solid material from vehicles, ships or storage containers into other vehicles, ships, storage containers or to processing equipment. Detailed below are typical permit unit groupings associated with bulk solid material transferring and storage. Each permit unit requires a separate permit.

1. Each bulk solid material transferring and storage system, starting with the hopper which receives such bulk solid material from any vehicle, ship or storage container and ending with the receiving storage container* or at the point or points of discharge into other vehicles, ships or processing equipment and consisting of, but not limited to, piping, conveyors, elevators, valves, hoses, metering or weighing devices, pumps, air separators, and strainers.**

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Filter Cloth Dust Collector).

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* Storage containers for bulk solid material may require separate permits. Refer to Storage Tank to determine permit unit status.

* The termination of a bulk material handling system permit unit occurs if. 1.) the material is transferred to storage, 2.) the material is manually transferred to the next step in the process or to another permit unit, or 3.) the material changes from the bulk form to "unit" form. Storage is defined as a capacity great enough to hold more then a day's supply of the downstream process material requirements. A manual transfer is movement of materials by any means other then conveyorized means, such as by end loaders, tote bins. etc.. Unit form may be defined as more independently recognizable shapes such as end products or those at an intermediate step in the overall process.

CATALYTIC CRACKING

Catalytic cracking involves processes of forming short chain hydrocarbons, in the gasoline boiling range, from long chain hydrocarbons in the presence of a suitable catalyst. Detailed below are typical permit unit groupings associated with catalytic cracking. Each permit unit requires a separate permit.

1. Each catalytic cracking system, starting with gas-oil or reduced crude charge stream and ending with the reactor liquid and gas discharge streams, consisting of, but not limited to, such devices as reactors, regenerators, heat exchangers, separators, filters, conveyors, compressors, pumps and blowers.

2. Each boiler (see applicable basic equipment instruction, Boiler).*

3. Each catalyst handling and storage facility which is not an integral part of the process (see applicable basic equipment instructions, Solid Materials Processing).

4. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, Air Pollution Control System-Electrical Precipitator, Filter Cloth Dust Collector, etc.).

5. Each storage tank (see applicable basic equipment instructions, Storage Tank).

6. Each internal combustion engine (see applicable basic equipment instructions, Internal Combustion Engine)**

7. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for the following processes shall be determined from the description above:

Fluid Catalytic Cracking
Houdresid Catalytic Cracking
Houdriflow Catalytic Cracking
Orthoflow Fluid Catalytic Cracking
Thermofor Catalytic Cracking

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU /HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

** Piston type internal combustion engines with a manufacturers rating of 50 brake horsepower or less or gas turbine engines with a maximum heat input rate of 2,975,000 BTU/HR are exempt from permit requirements.

CATALYTIC REFORMING

Catalytic reforming involves a rearrangement of hydrocarbon molecules in the presence of catalysts to form aromatic compounds. Detailed below are typical permit unit groupings associated with catalytic reforming. Each permit unit requires a separate permit.

1. Each catalytic reforming system, starting with naphtha charge and ending with the stabilized reformate and gas streams, consisting of, but not limited to, such devices as columns, reactors, regenerators, contactors, heat exchangers, filters, separators, conveyors, compressors, pumps, blowers, and, dryers

2. Each boiler (see applicable basic equipment instructions, Boiler).*

3. Each catalyst handling and storage facility which is not an integral part of the process (see applicable basic equipment instructions, Solid Materials Processing).

4. Air pollution control equipment (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, Air Pollution Control - Electrical Precipitator, Filter Cloth Dust Collector, etc.).

5. Each storage tank (see applicable basic equipment instructions, Storage Tank).

6. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

7. Each internal combustion engine (see applicable basic equipment instructions, Internal Combustion Engine).**

Permit units for the following processes shall be determined from the descriptions above:

Catforming	Iso-Plus Process	Sinclair-Baker Catalytic Reforming
Cycloversion	Platforming	Sovaforming
Houdriforming	Powerforming	Thermofor Catalytic Reforming
Hydroforming	Rexforming	Ultraforming
Hyperforming		

* Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

** Piston type internal combustion engines with a manufacturers rating of 50 brake horsepower or less or gas turbine engines with a maximum heat input rate of 2,975,000 BTU/HR are exempt from permit requirements.

CHEMICAL MANUFACTURING

Chemical manufacturing involves the processing of bulk materials which undergo chemical or physical changes in the process. Not included in this category are processes involving petroleum and its derivatives. Typical permit unit groupings associated with chemical manufacturing are detailed below. Each permit unit requires a separate permit.

1. Each chemical manufacturing system starting with the initial raw materials charge and ending with the product streams the permit unit is designed to produce consisting of, but not limited to, columns, reactors, coolers, classifiers, quenchers, separators, vessels, heat exchangers, pumps, ejectors, and scrubbers.

2. Storage tank or container (See applicable basic equipment instruction, Storage Tank).*

3. Each boiler (see applicable basic equipment instructions, Boiler).**

4. Each air pollution control system (see applicable control equipment instructions,(e.g., Vapor Recovery, Waste or Emergency Gas Disposal, Air Pollution Control System - Electrical Precipitator, etc.).

5. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler). * *

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* Tanks which are used exclusively to store solid bulk material may be included in the chemical manufacturing system permit unit if the material stored is received from only one source permit unit to which it is physically united by conveyor, chute, pipe or hose, or may be individual permit units requiring separate permits. See Storage Tank.

** Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU /HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

COFFEE ROASTING AND PROCESSING

Coffee roasting involves the drying and parching of coffee beans to produce a characteristic color and flavor. Detailed below are typical permit unit groupings associated with coffee roasting and processing. Each permit unit requires a separate permit.

1. Each green bean receiving and storage system (see applicable basic equipment instructions, Bulk Solid Material Transferring and Storage).

2. Each mixer, cleaner, recirculator and clean bean storage system (see applicable basic equipment instructions, Solid Material Processing).

3. Each coffee roaster consisting of shell, roasting chamber, burner assemblies, combustion chamber, recirculating fan, cooler, ducts, dampers, green coffee conveyor, and all motors.

4. Each stoner, conveyor and roasted bean storage system (see applicable basic equipment instructions, Solid Material Processing).

5. Each chaff conveying and processing system (see applicable basic instructions, Solid Material Processing).

6. Each air pollution control system (see applicable control equipment instructions, Vapor Combustion Device, Air Pollution Control System Filter Cloth Dust Collector. etc.).

(See following page for typical flow diagram).

COGENERATION SYSTEMS

Cogeneration systems generally consist of internal combustion engines or gas turbines used to convert the produced mechanical energy into electrical energy while simultaneously using waste heat from exhaust gasses and/or water jacket heat to produce additional energy, usually in the form of steam. Detailed below are typical permit unit groupings associated with cogeneration systems Each permit unit requires a separate permit.

1. Each cogeneration system including the internal combustion engine or gas turbine, waste heat boiler, duct burner, non-selective catalytic reactor, fuel feed equipment except fuel storage tanks, associated steam turbine and all driven devices.

2. Each storage tank (see applicable basic equipment instructions, Storage Tank).*

3. Each air pollution control system (see applicable control equipment instructions, Air Pollution Control System - Selective Catalytic Reactor).

* Certain fuel storage tanks are exempt from permit requirements. All other fuel oil tanks are permit units as detailed under Storage Tank.

CONCRETE BATCHING

Concrete batching involves the proportioning and weighing of aggregate (sand and rock) and cement. Detailed below are typical permit unit groupings associated with concrete batching. Each permit unit requires a separate permit.

1. Each cement receiving and storage system, starting with the receiving hopper, consisting of conveying screws, bucket elevators, vibrators, aeration equipment, pneumatic conveyors and ending with and including the storage silos.*

2. Each "guppy" including any pneumatic cement transfer equipment, vent filters, and transfer hoses.

3. Each batching plant, starting with rock and sand conveyor from storage bins or rock and sand receiving hopper, consisting of vibrators, bucket elevator, overhead compartmented hoppers, weigh hoppers, mixers, gathering hopper or discharge belt, water rings, shrouds and ending with truck loading.**

4. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Filter Cloth Dust Collector, etc.).

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* Vent filters used on storage silos or other devices are part of that equipment if they are not provided with induced draft fans and the material collected in the filter bags is discharged directly back into the device it is controlling.

** Small rental yard type concrete batch plants where the mix is usually hauled away by the customer in a trailer for home improvement projects include the cement storage silos with the batch plant permit unit.

COOKER, DIGESTER OR FRYER

Cookers, digesters or fryers are vessels or containers in which material is caused to undergo chemical and physical changes by the application of heat. Detailed below are typical permit unit groupings associated with cookers, digesters or fryers. Each permit unit requires a separate permit.

1. Each cooker, digester or fryer consisting of a single or double shell, heaters or burner assemblies or other heating devices, agitators, motors, condensers, pumps and other appurtenances.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery System, Vapor Combustion Device, Air Pollution Control System - Scrubber, etc.).

CRUDE OIL PROCESSING (DISTILLATION)

Crude oil processing involves the separation of the crude into its fractions. Detailed below are typical permit unit groupings associated with crude oil processing. Each permit unit requires a separate permit.

1. Each crude oil processing unit, starting with the crude oil charge and ending with gas, straight run naphthas and lighter components, straight run gas oils and straight run vacuum residuum or distillate, consisting of, but not limited to, primary and secondary towers, stripping columns, accumulators, pumps, and heat exchangers.

2. Each boiler (see applicable basic equipment instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

4. Each storage tank (see applicable basic equipment instructions, Storage Tank).

5. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

NOTE:

1. Combination cracking units are detailed under Thermal Cracking.

2. Permit units for the following processes shall be determined from the descriptions above:
   - Atmospheric Distillation
   - Crude Topping
   - Road Oil Topping
   - Vacuum Distillation

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* Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

CRUDE OIL PRODUCTION

Crude oil production involves the process of bringing the oil to the surface and pre-processing that oil to make it ready for the actual refining operation. Detailed below are typical permit unit groupings associated with crude oil production. Each permit unit requires a separate permit.

1. Each crude oil production unit, starting with the crude oil charge and ending with the shipping tanks, consisting of , but not limited to, gas separators, wash tanks, heater treaters, waste water tanks, clarifiers, pumps, compressors truck loading or LACT units, heat recovery equipment, and shipping tanks.

2. Each boiler (see applicable basic equipment instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

4. Each storage tank (see applicable basic equipment instructions, Storage Tank).**

5. Each gas processing unit.

6. Each internal combustion engine *** (see applicable basic equipment instructions, Internal Combustion Engine).

7. Each waste water treatment plant.

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* Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

** Storage tanks in crude oil production are defined as any tank that does not receive product for any time period greater than 72 hours. Shipping tanks are those that continuously receive crude oil or where that cycle is broken for not more than 72 hours.

*** Piston type internal combustion engines with a manufacturers rating of 50 brake horsepower or less or gas turbine engines with a maximum heat input rate of 2,975,000 BTU/HR are exempt from permit requirements.

DEBONDING

Debonding involves the separating of objects by burning away the material which binds the object together. Detailed below are typical permit unit groupings associated with debonding. Each permit unit requires a separate permit.*

1. Each furnace or oven consisting of shell, refractory, burner assemblies, combustion chamber, recirculating fan and motor.

2. Each air pollution control system (see applicable control equipment instructions, Vapor Combustion Device).

* Some debonding units combine both basic and control features within one integrated unit. Where the equipment is so devised and constructed that the individual functional parts are contained within one unit, it will be considered one permit unit.

DIP COATING, FLOW COATING, IMPREGNATING, SATURATING

Dip coating, flow coating, impregnating or saturating involves the transfer of liquid or molten material to articles so that the liquid or molten material will either adhere to the surface of the article or penetrate partially or completely, into the article. The operation may involve the processing of product in a continuous roll or in individual units. Detailed below are typical permit unit groupings associated with dip coating, flow coating, impregnating or saturating. Each permit unit requires a separate permit.

1.

a. When the product being coated, impregnated or saturated is in the form of a continuous roll or bulk material:

Each dip coating, flow coating, impregnating or saturating starting with the unrolling device and ending with the reroll device, consisting of the dip tank, flow coater, impregnator, or saturator, heating device, circulating pump, drain rack and drier.

b. When the product being coated, impregnated or saturated is in the form of individual units:

Each dip tank, flow coater, impregnator or saturator consisting of heating device, circulating pump and drain rack.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Combustion Device, Air Pollution Control System - Activated Carbon Adsorption, Scrubber, etc.).

DRYER OR KILN

Dryers or kilns are used to remove volatile matter (usually moisture or carbon dioxide) from materials by the application of heat. Detailed below are typical permit unit groupings associated with dryers or kilns. Each permit unit requires a separate permit.

1. Each dryer or kiln consisting of a shell and refractory, heaters or burner assemblies, motors, fans (exhaust and recirculation), pumps, materials handling equipment, and classifying equipment.*

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Filter Cloth Dust Collector, Scrubber, etc.).

* These "stand alone" dryers or kilns are generally batch operations where loading and unloading is done manually rather then by continuous means, such as conveyor belts.

DRY CLEANING

Dry cleaning involves the removal of soil from cloth by use of petroleum or synthetic solvents. The operation involves the processing of product material as units rather than as bulk. Detailed below are typical permit unit groupings associated with dry cleaning. Each permit unit requires a separate permit.

1. Each facility receives a single dry cleaning permit for all equipment or systems employing the same petroleum or synthetic solvent and will include dry cleaning washers, solvent extractors, tumblers, filters, pumps, reservoirs, lint traps, cookers (muck or sludge), refrigeration condensers, exhaust ducting, and all air pollution control equipment.

2. Each boiler (see applicable basic equipment instructions, Boiler). *

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

FURNACE

A furnace involves equipment with a heating device for the melting, sweating, heat treating or volatilizing of product material or the selective combustion of unwanted material. Detailed below are typical permit unit groupings associated with a furnace. Each permit unit requires a separate permit.

1. Each furnace consisting of shell and refractory, regenerator, recuperator, burner assemblies, blowers, electrical current supply equipment, charging devices and motors, tilting, rocking, discharging or tapping devices.

2. Each air pollution control system (see applicable control instructions, e.g., Vapor Combustion Device, Air Pollution Control System Filter Cloth Dust Collector, Electrical Precipitator, etc.).

GALVANIZING

Galvanizing is the process of coating iron or steel with zinc by immersion in a bath of molten zinc. The operation usually involves the processing of product material as units rather than as bulk. Detailed below are typical permit unit groupings associated with galvanizing. Each permit unit requires a separate permit.*

1. Each galvanizing tank or kettle, including burner assembly.**

2. Each air pollution control system (see applicable control instructions, e.g., Air Pollution Control System - Scrubber, Filter Cloth Dust Collector, etc.).

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* It is common practice to utilize an "extra" galvanizing installation. Such extra equipment is a separate permit unit and requires a separate permit.

** If the galvanizing process is for wire or coil stock, the kettle is included as part of a process line which will include all of the individual processes such as recoiling and heat treating.

GARNETTING

Garnetting involves the shredding, cleaning, and carding or tearing of textile products. Detailed below are typical permit unit groupings associated with garnetting. Each permit unit requires a separate permit.

1. Each garnetting system, starting with the breaker and ending with the batting cutter, consisting of bale breaker, oil tempering device, pneumatic conveying fan, condensers, pickers, mechanical conveyor or conveyors, feeders, garnetts, edge trimmers, trim conveyors, finishing rolls and conveyor, and length cutter.

2. Each air pollution control system (see applicable control equipment instructions, e.g.. Air Pollution Control System - Centrifugal Separator, Filter Cloth Dust Collector, etc.).

GAS CONVERSION

Gas conversion involves processes for forming high octane components from unsaturated compounds or isomers. Detailed below are typical permit unit groupings associated with gas conversion. Each permit unit requires a separate permit.

1. Each gas conversion unit, starting with the charge streams and ending with the product stream or streams for which the individual system designed, consisting of, but not limited to, columns, processing vessels, heat exchangers, coolers, pumps, compressors, mixers, vaporizers, driers, catalyst system, and filters.

2. Each boiler (see applicable basic equipment instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

4. Each catalyst handling and storage facility which is not an integral part of the process (see applicable basic equipment instructions, Solid Materials Handling).

5. Each storage tank (see applicable basic equipment instructions, Storage Tank).

6. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for equipment performing the following processes shall be determined from the description above:

Catalytic Alkylation	Hydrogenation
Catalytic Isomerization	Thermal Isomerization
Catalytic Polymerization	Thermal Polymerization
HF Alkylation	

* Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

HEATER AND REBOILER

A fired heater* or fired reboiler* contains a combustion chamber in which heat from an open flame is utilized to raise the temperature of a liquid or to generate vapor within a confined system.

Detailed below is a typical permit unit grouping associated with fired heaters and fired reboilers. Each permit unit requires a separate permit.

1. Each fired heater or fired reboiler consists of the shell, refractory, heater firebox, burners or burner assemblies, blowers, chimney or stack, flue and breaching, pumps, controls, fitting and appurtenances, flue gas recirculation, selective non-catalytic reactor, and individual fuel supply system except fuel storage tank.**

2. Each storage tank (see applicable basic equipment instructions, Storage Tank).

* If also used as an air pollution control device refer to Boiler Used as a Vapor Combustion Device.

** Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU /HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

HYDROCARBON RECOVERY

Light hydrocarbon (gasoline and fractions lighter than gasoline) recovery involves the recovery of light hydrocarbons and gasoline from wet gases. Detailed below are typical permit unit groupings associated with such recovery. Each permit unit requires a separate permit.

1. Each light hydrocarbon recovery system, starting with the charge stream and ending with the product streams for which the system is designed, consisting of, but not limited to, columns, tanks, exchangers, coolers, pumps, scrubbers, driers, refrigeration units, and compressors.

2. Each boiler (see applicable instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

4. Each storage tank (see applicable basic equipment instructions, Storage Tank).

5. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for the following processes may also be determined from the descriptions above:

Adsorption
Aromatics Recovery for Gasoline
Arosorb
Blending
Condensate Fractionation
Cyclic Adsorption
Extractive Distillation
Gas Concentration
Gas Fractionation
Hypersorption with
Product Practionation
Low Temperature
Udex

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

INCINERATION

Incineration consists of the disposition of combustible refuse by burning within an enclosing device. "Combustible refuse" is any waste material containing carbon in a free or combined state, other than liquids or gases. Detailed below is a typical permit unit grouping associated with incineration. Each permit unit requires a separate permit.

1. Each incinerator may include a primary combustion chamber, mixing chamber, secondary combustion chamber, stack, induced draft fan, burner assemblies, blowers, pumps, air cooling section, and charging mechanism.

2. Each air pollution control system e.g., afterburner on a flue-fed incinerator, (see applicable control equipment instructions, e.g., Vapor Combustion Device).

INTERNAL COMBUSTION ENGINES

An internal combustion engine is a machine that produces mechanical energy through the combustion of a fuel. Engines are classified as reciprocating type (piston type) or turbines (with rotating and fixed vanes). Detailed below is a typical permit unit grouping associated with internal combustion engines. Each engine is a separate permit unit and each permit unit requires a separate permit.*

1. Each reciprocating type engine including, but not limited to silencers, non-selective catalytic reactors, air-to-fuel ratio controllers, fuel handling systems except fuel storage tanks, and the devices being driven.**

2. Each turbine type engine including but not limited to water injection system, fuel handling systems except fuel storage tanks, and devices being driven**

3. Each storage tank (see applicable basic equipment instructions, Storage Tank)***

4. Each air pollution control system (see applicable control equipment instructions, Air Pollution Control System - Selective Catalytic Reactor)****

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* Piston type internal combustion engines with a manufacturers rating of 50 brake horsepower or less or gas turbine engines with a maximum heat input rate of 2,975,000 BTU/HR are exempt from permit requirements.

** If the internal combustion engine is used for cogeneration purposes, see Cogeneration Systems.

*** Certain fuel storage tanks are exempt from permit requirements. All other fuel oil tanks are permit units as detailed under Storage Tank.

**** When a selective catalytic reactor is used or the engine is a compression ignition type, the control equipment is always considered a separate permit unit.

NATURAL GASOLINE PROCESSING

Natural gasoline processing involves the treatment of wet natural gas and the recovery of light liquid petroleum fractions. Detailed below are typical permit unit groupings associated with natural gasoline processing. Each permit unit requires a separate permit.

1. Each dehydration system including, but not limited to, columns -or towers, exchangers, separators, tanks, filters, and pumps.

2. Each odorizer unit consisting of, but not limited to, tanks, columns, towers and pumps.

3. Each natural gasoline plant consisting of, but not limited to, and columns, exchangers, coolers, tanks, scrubbers, process tanks, compressors, pumps, vent stacks, separators, oil purifiers, and driers.

4. Each compression unit consisting of, but not limited to, compressors, coolers, scrubbers, and pumps.

5. Each boiler (see applicable instructions, Boiler)*

6. Each storage tank (see applicable basic equipment instructions, Storage Tank).

7. Each loading system (see Bulk Material Transferring).

8. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

9. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

OVEN

The use of an oven involves the heating or heat treating of product material as units rather than as bulk*. Detailed below are typical permit unit groupings associated with ovens. Each permit unit requires a separate permit.

1. Each oven** consisting of the shell, vent, burner, assemblies, combustion chamber, fans, ducting, and electrical controls.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Combustion Device).***

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* This permit unit does not include any air preconditioning or air purification equipment.

** Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

*** Any afterburner which supplies more than 25 per cent of the heat input to the permit unit of basic equipment which it vents shall be considered part of that piece of basic equipment.

PETROCHEMICAL PROCESSING

Petrochemical processing involves production of petroleum based chemicals. Detailed below are typical permit unit groupings associated with Petrochemical processing. Each permit unit requires a separate permit.

1. Each Petrochemical processing unit, starting with the charge stream and ending with the product stream for which the system is designed, consisting of, but not limited to, columns, exchangers, coolers, pumps, compressors, scrubbers, filters, centrifuges, driers, and refrigeration units.

2. Each boiler (see applicable basic equipment instructions, Boiler)*

3. Each storage tank (see applicable basic equipment instructions, Storage Tank).

4. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.)

5. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for the following processes may also be determined from the descriptions above:

Acetaldehyde Prod.
Acetone Prod.
Acetylene Prod.
Alcohol Prod.
Alkyl Aryl Sulfonate Prod.
Amine Prod.
Ammonia Prod.
Ammonium Sulfate Prod.
Amyl Alcohol Prod.
Aromatics Recovery
Butadiene Prod.
Carbon Black Prod.
Carbon Disulfide Prod.
Chlorinated Methane Prod.
Cumene Prod.
Ethyl Benzene Prod.
Ethyl Ether Prod
Ethylene Dichloride Prod.
Ethyl Chloride Prod.
Ethylene Glycol Prod.
Ethylene Oxide Prod.
Ethylene Prod.
Formaldehyde Prod.
Ethyl Ether Prod.
Glycerol Prod.
Isobutylene Prod.
Ketone Prod.
Maleic Anhydride Prod.
Mercaptan Prod.
Methyl Ethyl Ketone Prod.
Naphthenic Acid Prod.
Nitroparaffin Prod.
Pentaerythritol Prod.
Phthalic Anhydride Prod.
Polybutene Prod.
Polyethylene Prod.
Propylene Prod.
Pro.pyle-ne Prod
Styrene Prod.
Sulfur Recovery Prod.
Trichloroethylene Prod.
Urea Prod.
Vinyl Acetate Prod.
Vinyl Chloride Prod.

* Any combustion equipment with a maximum heat rate of less then 2,000,000 BTU/HR, calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

PETROLEUM PRODUCT TREATING

Petroleum product treating involves processes for treatment of petroleum fractions to make the material marketable or to render it suitable for further processing. Detailed below are typical permit unit groupings associated with petroleum product treating. Each permit unit requires a separate permit.

1. Each petroleum product treating unit, starting with the charge stream and ending with the product stream for which the system was designed, consisting of, but not limited to, processing tanks, eductors, pumps, blowers, separators, heat exchangers, columns ,coolers, filters, inert gas generators, and scrubbers.

2. Boiler (see applicable equipment instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Waste or Emergency Gas Disposal, etc.).

4. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for the following processes shall be determined from the descriptions below:

Acid Treating
Amine Treating
Bender (catalytic)
Clay Treating
Cobalt Molybdate Desulfurizing
Copper Sweetening
Desalter
Hydrodesulfarizer (also Trickle)
Hydrfinning
Hydropretreating
Hydrotreating
Hypochlorite Sweetening
Inhibitor Sweetening
Dieselforming
Doctor Treating
Electric Distillate Treating
Furfural Treating
Girbotol Treating
Glycol-Amine Treating
Gulfining
Mercapsol Treating
Phosphate Desulfurizing
Sovafining
$S0_2$ Extraction
Trannin Treating
Unifining

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

PLATING OR ETCHING

Plating or etching is the process of immersing product material into electrolytic solutions to deposit a surface coating or to etch exposed metal.* The operation involves the processing of product material as units rather than as bulk. Detailed below are typical permit unit groupings associated with plating or etching. Each permit unit requires a separate permit.

1. Each plating or chemical milling unit including its heating device and electrical current supply equipment.

2. Each air pollution control system (see applicable control equipment instructions, Air Pollution Control System - Scrubber).

* This type of operation does not include vacuum flash plating, spray plating or metallizing. Anodizing and pickling are regarded as aqueous surface preparation processes and do not require a Permit to Construct or a Permit to Operate.

RENDERING

Rendering involves the cooking of meat scraps to recover tallow and tankage. Detailed below are typical permit unit groupings associated with rendering. Each permit unit requires a separate permit.

1. Each blood drier (see applicable basic equipment instructions, Drier or Kiln, Spray Drier).

2. Each raw material processing system, starting with the receiving room or hopper and ending as the point or points of discharge to the cookers, consisting of, but not limited to, receiving hoppers, hoaxers, blow tank and conveyors.

3. Each cooker (see applicable basic equipment instructions, Cooker, Digesting or Frying Vessel).*

4. Each rendered products system, starting with the discharge from the cookers and ending with tankage storage, consisting of, but not limited to percolators, expellers, grinders, centrifuges and all pumps and surge tanks.

5. Each tallow storage tank (see applicable basic equipment instructions, Storage Tank).

6. Each tallow transferring or loading facility (see applicable basic equipment instructions, Bulk Liquid or Gaseous Material Transferring).

7. Each air pollution control system (see applicable control equipment instructions, e.g. Vapor Combustion Device, Exhaust - System Scrubber, Air Pollution Control System - Filter Cloth Dust Collector, etc.).

* Where continuous rendering cookers are used, the cooker(s) are part of the raw material processing equipment permit unit.

ROCK CRUSHING AND SIZING

Rock crushing and sizing involves the breaking up of. rock, and its subsequent classification according to size. Detailed below are typical permit unit groupings associated with rock crushing and sizing. Each permit unit requires a separate permit.

1. Each rock crushing or sizing system may begin with the discharge from storage and/or with the material charging hopper or grizzly and end with storage, consisting of all conveying, crushing, screening, separating, washing, electric motors, and storage bins* or piles.**

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Scrubber, Filter Cloth Dust Collector, etc.).

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* Storage bins may require separate permits. To determine permit unit status, refer to Storage Tank.

** The termination of a rock crushing and sizing system permit unit occurs if: 1.) the material is transferred to storage, or 2.) the material is manually transferred to the next step in the process or to another permit unit. Storage is defined as a capacity great enough to hold more then a day's supply of the downstream process material requirements. A manual transfer is movement of materials by any means other then conveyorized means, such as by end loaders, tote bins. etc.

SIZE REDUCTION

Size reduction involves the diminution of matter by physical means. Detailed below are typical permit unit groupings associated with size reduction. Each permit unit requires a separate permit.

1. Each size reduction system, starting with the discharge from storage or with the charging hopper or grizzly and ending with storage or packaging, consisting of all conveying, crushing, screening, separating and washing equipment, electric motors, and storage bins or piles.**

2. Each air pollution control system (see applicable control equipment instruction, e.g., Air Pollution Control System - Scrubber, Filter Cloth Dust Collector, etc.).

Typical equipment included in this category are:

Attrition Mills
Ball Mills
Bowl Mills
Cage Grinders
Cement Crushers, Mills or Pulverizers
Chilean Mills
Colloid Mills
Comminutors
Cone Crushers
Cork Granulators
Corn Crackers
Crushing Rolls
Decorticators or Shredder
Disintegrators
Disk Crushers
Grate Mills
Grinders
Gyratory Crushers
Hammer Mills
Hashers
Hoaxers
Jaw Crushers
Rod Mills
Stamp Mills
Toothed Mills

* Storage bins may require separate permits. To determine permit unit status, Refer to Storage Tank.

** The termination of a size reduction system permit unit occurs if: 1.) the material is transferred to storage, or 2.) the material is manually transferred to the next step in the process or to another permit unit. Storage is defined as a capacity great enough to hold more then a day's supply of the downstream process material requirements. A manual transfer is movement of materials by any means other than conveyorized means, such as by end loaders, tote bins. etc.

SMOKE GENERATOR

Smoke generators involve equipment for the production of volatilized material from an incomplete combustion process. Detailed below are typical permit unit associated with smoke generators. Each permit unit requires a separate permit.*

1. Each smoke generator consisting of sawdust burning chamber, ductwork, dampers, burner assemblies, screw feed with motor and fan.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Combustion Device).

* Whenever a smoke generator and a smokehouse heat circulating supply mechanism are designed as an integral unit, the permit unit grouping will include this integral unit and the smokehouse.

SMOKEHOUSE

Smokehouses are enclosed spaces for curing meats (or imparting smoke flavor to foods) by exposure to smoke. Detailed below are typical permit unit groupings associated with smokehouses. Each permit unit requires a separate permit.*

1. Each smokehouse consisting of burner assemblies, steam coils, electric heater and recirculating fan.

2. Each air pollution control system (see applicable control equipment instructions, Vapor Combustion Device).

3. Each Smoke Generator (see applicable basic equipment instructions, Smoke Generator).*

4. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Combustion Device).

*Whenever a smoke generator and a smokehouse heat circulating supply mechanism are designed as an integral unit, the permit unit grouping will include the integral unit and the smokehouse.

SOLID MATERIAL PROCESSING

Solid material processing involves equipment for handling, conveying, crushing, mixing, etc., of solid material. A permit unit shall consist of equipment interconnected by bulk conveyors and not normally manually charged. Detailed below are typical permit unit groupings associated with solid material processing. Each permit unit requires a separate permit.

1. Each solid material processing system, starting with the discharge of the feed from storage or with the charging hopper and ending with storage*, or packaging consisting of all mechanical conveyors, pneumatic conveyors including material separators, crushers or mills, screens, classifiers, separators, mixers, driers, and other mechanical process equipment.**

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Scrubber, Centrifugal Separator, etc.).

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* Storage bins may require separate permits. See Storage Tank.

** The termination of a solid material processing system permit unit occurs if-.1.) the material is transferred to storage, 2.) the material is manually transferred to the next step in the process or to another permit unit, or 3.) the material changes from bulk form to “unit” form. Storage is defined as a capacity great enough to hold more then a day's supply of the downstream process material requirements. A manual transfer is movement of materials by any means other than conveyorized means, such as by end loaders, tote bins. etc. Unit form may be defined as more independently recognizable shapes such as end products or those at an intermediate step in the overall process.

SOLVENT DEGREASING

Solvent degreasing is the removal of oil, grease or wax by the action of a solvent (usually a chlorinated hydrocarbon).* The action may be accomplished by dip degreasing or by vapor degreasing. In vapor degreasing the hot solvent vapors condense on the cold metal parts of dissolving the oil, grease or wax and the condensate drains off carrying the soil from the parts. Solvent degreasing involves the processing of material as units rather than in bulk. Detailed below are typical permit unit groupings associated with this process. Each permit unit requires a separate permit.

1. Each degreasing tank consisting of, but not limited to, integral still, burner assemblies or electric heating device, sonic generator, pumps, vapor region, condensing ring and spray attachment.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, etc.).

* This type of operation does not include degreasing by means of atomized streams; for this refer to Spray Enclosure.

SPRAY DRYER

A spray dryer consists of a chamber in which a liquid is rapidly evaporated from an atomized solution, suspension or slurry in a heated gas stream, yielding a dry free-flowing product. Detailed below are typical permit unit groupings associated with spray dryers. Each permit unit requires a separate permit.

1. Each spray dryer system, starting with slurry pumping equipment and ending with storage or discharge to processing equipment, consisting of, but not limited to, burner assemblies, slurry pumping equipment, storage bins, * conveying equipment, dryer chamber, spray nozzles and mixers.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Air Pollution Control System - Scrubber, -Filter Cloth Dust Collector, etc.).

3. Each bagging or packing system (see applicable basic equipment, Bulk Solid Material Transferring And Storage).

* Storage tanks (bins) may require separate permits. Refer to Storage Tanks.

STORAGE TANK

Storage tanks may be any vessel, bin or other container regardless of shape or configuration, covered or uncovered that receive and hold a material for future use. Storage tanks fall under two basic groupings.

A. Any container used to store liquids or gases is an individual permit unit requiring a separate permit.

B. Any container used exclusively to store bulk solid material received from only one source permit unit and physically united to that source permit unit by conveyor, chute, pipe or hose is part of that source permit unit. Where the stored bulk material is received from more than one source permit unit or the container is not physically united to the source permit unit, it is an individual permit unit requiring a separate permit.

For the bulk solid material container to be considered "storage", the capacity must be adequate to hold a 24-hour supply or more of the material for the downstream process. If this condition is not met, the container is considered to be "surge" and the permit unit continues. Detailed below are typical permit unit groupings associated with storage tanks. Each permit unit requires a separate permit.

1. Each single or multi-walled container or vessel consisting of, but not limited to, compartments, jackets, heating devices, agitators, vibrators, motors, compressors, aeration devices, vents, and simple filters or packed columns without induced draft exhaust blowers.

2. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Vapor Combustion Device, Waste or Emergency Gas Disposal, Air Pollution Control System - Scrubber, Filter Cloth Dust Collector, etc.).

3. Boiler (see applicable equipment instructions, Boiler).*

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

SURFACE COATING

Surface coating (roller coating, rotogravure, printing press, lithographing) involves the coating of objects by transferring liquid material by means of rollers, plates, etc., to the surface of an object. Detailed below are typical permit unit groupings associated with surface coating. Each permit unit requires a separate permit.

1. Each surface coating device consisting of, but not limited to, frame, bed, platen, cylinders, rollers, troughs, fountains, belts, power transmission devices, motors and pumps.*

2. Each air pollution control system (see applicable control equipment instructions, Vapor Combustion Device).

* Air compressors used with such equipment are separate permit units which do not require a Permit to Construct or a Permit to Operate.

THERMAL CONVERSION

Thermal conversion involves processors for changing the molecular structure of hydrocarbons by the application of heat without the use of catalysts. Detailed below are typical permit unit groupings associated with thermal conversion. Each permit unit requires a separate permit.

1. Each thermal conversion system, starting with straight run residuum or heavy crude charge and ending with gasoline, kerosene or fuel oil, consisting of, but not limited to, columns, processing tanks, heat exchangers, separators, classifiers, conveyors, compressors, pumps, and blowers.

2. Each boiler (see applicable basic equipment instructions, Boiler).*

3. Each air pollution control system (see applicable control equipment instructions, e.g., Vapor Recovery, Air Pollution Control System - Electrical Precipitator, Filter Cloth Dust Collector, etc.).

4. Each storage tank (see applicable basic equipment instructions, Storage Tank).

5. Each heater or reboiler (see applicable basic equipment instructions, Heater and Reboiler).*

Permit units for the following processes shall be determined from the description above:

Batch Cokers	Naphtha Reforming
Combination Cracking	Re-siduum Cracking
Continuous Cokers	Thermal Cracking
Delayed Cokers	Thermal Reforming
Gas-oil Cracking	Visbreaking

* Any combustion equipment with a maximum heat rate of less than 2,000,000 BTU/HR , calculated at the higher heating value, and exclusively fired on natural gas, LPG or any combination is exempt from permit requirements.

TIRE BUFFING

Tire buffing involves the removal of the remaining old tread from the carcass of a worn pneumatic tire and contouring of the surface preparatory to re-treading. This type of operation involves the processing of product material as units rather than as bulk with each permit unit requiring a separate permit. Detailed below are typical permit unit groupings associated with tire buffing.

1. Each tire buffing machine consisting of a heavy steel frame with machined ways on which are mounted a tire mandrel, a blade or tack-type rasp driven by a heavy-duty electric motor, power crossfeed, buffing template for contouring, sidewall finishers, radial buffs, automatic controls and rasp water spray equipment.

2. Each air pollution control system (see applicable control equipment instructions, Air Pollution Control System - Centrifugal Separator).

TOXIC MATERIALS MACHINING SYSTEM

Machining of toxic or carcinogenic containing materials involves mechanical cutting, grinding, drilling, tapping, milling, routing, sanding, polishing, buffing. and other operations normally exempt from permit requirements. The release of toxic or carcinogenic emissions requires the permitting of this equipment. Detailed below are typical permit unit groupings associated with toxic or carcinogenic containing material machining equipment. Each permit unit requires a separate permit.*

1. Each toxic or carcinogenic containing materials machining system starting at the control device vent to atmosphere and ending at the material processing equipment consisting of the control device, hoods, ducting, dampers, fans, motors, and a listing of all of the processing equipment.**

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* These permit units are considered "dual" units in that they contain both the basic and control equipment. Permit descriptions are required to contain all details as shown under any typical air pollution control system and a simplified listing of the actual material processing equipment.

** This type of permit unit is applicable to equipment used to machining beryllium, asbestos, etc.

VAPOR COMBUSTION DEVICE

A vapor combustion device is designed to provide complete oxidation of air contaminants. Such a device* includes both direct flame and catalytic afterburners, as well as devices in which all or part of the required heat is supplied by the combustion of the contaminants. Vapor, mist, smoke, odor or fume combustion devices are air pollution control equipment. Detailed below are typical permit unit groupings associated with vapor combustion devices. Each permit unit requires a separate permit.

1. Each vapor combustion device consisting of, but not limited to, shell, refractory, stack, burner assemblies, dampers, controls, fans, ductwork, hoods, catalytic components and gathering system.**

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* For a boiler used as a vapor combustion device, see Boiler Used as a Vapor Combustion Device.

** Any afterburner which supplies more than 25 per cent of the heat input to the permit unit of basic equipment which it vents shall be considered part of that piece of basic equipment.

VAPOR RECOVERY

Vapor recovery involves a gathering system and a means of handling the collected vapors for recovery or disposal. Detailed below are typical permit unit groupings associated with vapor recovery. Each permit unit requires a separate permit.

1. Each vapor recovery system, starting with the gathering lines and ending as the point or points of discharge to the atmosphere or fuel gas system or waste disposal system, consisting of, but not limited to, gathering lines, compressors, pumps, knockout pots, condensers, absorbers and saturators.

2. Each vapor storage tank (see applicable basic equipment instructions, Storage Tank).

WASTE OR EMERGENCY GAS DISPOSAL

Waste or emergency gas disposal involves the gathering and disposition of combustible gases, vapors and liquids by burning. Vapor and volatile liquid disposal systems are air pollution control equipment. Detailed below is a typical unit grouping associated with waste or emergency gas disposal. Each permit unit requires a separate permit.

Each vapor disposal system, starting with all vapor or liquid intakes to the disposal system and ending at the flare tip or tips, consisting of, but not limited to, water seal pots, piping, fittings, valves, vents, flare stacks and instrumentation.

Permit units for the following processes may be determined from the description above:

Emergency Gas Disposal
Emergency Vapor Disposal
Waste Gas Disposal
Waste Liquid Disposal
Waste Vapor Disposal

CHAPTER V

PROCESS DESCRIPTION

5.1 INTRODUCTION

In order to determine permit conditions, the process must be defined, which also means that the boundaries of the subject permit unit must have been previously determined. In short, all these concepts must come together in order to be able to present an understandable, concise process description and the related permit unit description that will be shown on the issued permit. It is strongly recommended that flow diagrams of the subject equipment be drawn and referred to as an aid in boundary determinations and in process descriptions. The diagram can also display expected emission point locations throughout the proposed system.

The process description should be as short as possible but should cover the process sufficiently to negate follow up questions by District personnel. Simple, understandable words should be used except where there are terms indigenous to a specific industry or equipment type. When the subject process is "ordinary", it is not necessary to state every last detail of the process, but the description should be able to stand alone (perhaps with the aid of the included system flow diagram). Good judgment must temper the process description; it is better to submit more information than necessary than to cause delays because the process description was not clear.

The following examples illustrate appropriate process descriptions.

Example 5-1

Ground Water Treatment System

The ground water contains 1,1 Dichloroethene (DCE) and 1,1,1-Trichloroethane (TCA). The expected concentrations are less than 50 ug/l of DCE and less than 50 ug/l of TCA. To be conservative, however, the facility is designed for 200 ug/l of DCE. TCA is not considered since the drinking water maximum concentration limit for TCA is 200 ug/l. The ground water will be continuously pumped at approximately 700 gallons per minute. The contaminated water will then enter the air stripping tower, flow down over high efficiency polypropylene Jaeger Tripacks, as air is forced upward through the tower by a blower. The air stripping tower will be equipped with a mist eliminator to remove airborne water droplets. The stripped ground water will then be gravity drained to the effluent sump. From the effluent sump, the ground water is pumped to the city's reservoir.

The air contaminated with the volatile organics is then treated by two carbon adsorber units operated in parallel under separate applications. The air passes through the carbon which adsorbs the volatile organics. The carbon will continue to adsorb the contaminants until the carbon becomes saturated and the DCE is detected in the exhaust. At that time, the ground water treatment system is taken out of service until the carbon is replaced.

Example 5-2

Air Pollution Control System to Vent a Bucket Filling Station

Detergent is transferred from a storage silo to a hopper above two fillers. Buckets are loaded by hand onto a belt conveyor for placement under the filling stations. Two screws inside of the filler hoppers charge the buckets with detergent. Buckets are then conveyed on to a capper and finally to a palletizer. A maximum of 225,000 lbs of detergent will be processed per 16 hour work day.

Throughout the process, particulate fugitive emissions will be controlled by a baghouse. Each point of emission will have an adequately designed hood with proper airflow rate.

Example 5-3

Expandable Polystyrene Molding System

The company will process a maximum of 5,500 pounds per day of expandable polystyrene beads. The beads contain approximately 6.5% by weight pentane which acts as a blowing agent, or 358 pounds per day of possible emissions. The raw beads are contained in polyethylene bags within the sealed boxes that weigh 1000 lbs each.

The expandable polystyrene beads are pneumatically conveyed to a hopper that gravity feeds to a small screw conveyor through the side of the pre-expander. Saturated steam is injected below the screw at 3 psig. The beads, upon expanding, overflow the pre-expander, passing by gravity into a feed hopper. The beads then drop into the prepuff dryer where they are conveyed as a fluidized bed (pneumatic) through the 18 foot length to a small hopper where the beads are pneumatically conveyed to one of 10 prepuff curing bins for a 24 hour curing stage. Production rate is 200 pounds per hour, 20 hours per day, through the pre-expanders.

After the 24 hour curing stage, the beads are fed pneumatically from the bottom of the prepuff bins into the molding presses. The molded parts are then transported to a drying tunnel, which is kept at 150°F, to remove moisture. Pentane emissions from the pre-expanders and the curing bins are vented to a boiler to be thermally oxidized. The boiler is primarily used to provide steam for the pre-expanders and the overall process.

Example 5-4

Various Locations Tank Degassing System

This system employs an Internal Combustion Engine to remove nonchlorinated petroleum hydrocarbon vapors from soil above and below ground and tank degassing. Typical applications include gasoline service stations where gasoline has been accidentally released into the surrounding soil and where leaking underground storage tanks are to be removed from service.

The equipment is first started by firing the engine with propane fuel. Once in operation, the engine produced vacuum draws gasoline vapors from the storage tank to the intake manifold. The system is operated by a "Kate" Digi-Link 4C master computer system. All functions of the tank degassing apparatus are controlled by the computer, including engine start-up, RPM, air/fuel ratio, timing, catalytic temperatures, and gas flow. An oxygen sensor feedback system inputs data to the computer (10 times per second). The computer then instructs the master fuel/air controller to add or delete fuel or air to maintain a stoichiometric fuel/air ratio at all times during the operation. The unit will be co-fired with LPG only when the BTU value of the tank vapors are too low to support the engine fuel requirements.

It can be seen from these sample process descriptions the importance of the system flow diagrams and how much they would add to understanding the written description. Process throughputs and other pertinent data included in these sample process descriptions is very helpful.

CHAPTER VI

PERMIT FEES/RULE 301

The AQMD is empowered by Health and Safety Code Section 40510 to collect permit processing fees. This resulted in the District adopting Rule 301. The permit processing fee is based on eleven schedules (A through I) set forth in the Summary Permit Fee Rates tables of Rule 301. In determining the correct fee for an equipment or process, refer to Table I (IA for Control Equipment and IB for Basic Equipment) for the appropriate schedule and then to the Summery Permit Fee Rates tables for the fee corresponding to that schedule. Note that if the equipment or process is not listed in Table I, the applicant has to pay the fees associated with Schedule C.

There are three Summary Fee Rates Tables: the first table is for permit processing, change of condition and alteration/modification; the second table refers to the ERC processing rates; and the third table is for change of operator. The different categories are described below:

1. Permit Processing - This is the basic fee for processing a permit application. It is intended for permits to construct new equipment and permits to operate existing equipment not subject to higher fees.

2. Change of Condition - When an applicant request a change in operating conditions that does not result in any physical change to the equipment, they must pay the fee specified in the Summary Permit Fee Rates table as change of condition.

3. Alteration/Modification - If a permit unit must be physically altered or modified, a permit application must be submitted and approved before the alteration can take place. The correct fee alteration/modification is as listed in the Summary Permit Fee Rates table.

4. ERC Processing – Applications for emission reduction credits (ERCs) are filed under Schedule I and the fees are as specified in the Summary of ERC Processing Rates.

5. Change of Operator – An application for a change of operator is required for a permit unit which undergoes a change of operator or ownership. The fee charged for a permit to operate for a change of operator is stated in the Summary of Permit Fee Rates for Change of Operator. Small businesses are charged a reduced fee. For this fee to be valid the permit application must be submitted within one year from the date of

occurrence. The equipment must also be operated in the same manner and without any physical changes.

The above fees can be subject to modifying variables. These variables can be either a fee increase or a relief and are as follows:

1. Higher Fee for Failing to Obtain a Permit to Construct - If a company builds, installs, erects or alters a permit unit without first obtaining a permit to construct from the District, they are subject to a higher fee for permit processing. This fee is 150% of the fees set forth in the Summary Permit Fee Rates table. This fee increase does not apply to permit applications that are submitted solely due to the 1992 amendment of Rule 219.

2. Small Business - When a company meets the qualifications as described in Rule 301(D), it qualifies for a reduction in fees. The fee for small businesses is 50% of the standard fee.

3. Identical Permit Units - If permit applications for identical permit units are submitted concurrently, they are subject to a fee reduction. The fee for the first permit unit will be the standard fee and all subsequent identical permit units will have a fee that is 50% of the standard fee.

4. Equipment Previously Exempted by Rule 219 - When a permit unit is required to have a permit solely due to the 1992 amendments to Rule 219, the fee shall be in accordance with schedule A.

5. Replacement of Non-Identical Equipment - No permit processing fee is required if a permit unit is being installed to replace a permit unit that was destroyed as a result of any event declared to be a "state of emergency" by the local, state or federal authorities.

Once the correct fee is submitted with the application, the applicant may wish to cancel the application for various reasons. If the request to cancel the application is received before work has been started on the application or if it is determined that the application was not required, the processing fee will be refunded less the cancellation fee of $116.53. If the engineering evaluation has been started then the fee will not be refunded.

The following pages contain examples and exercise problems of permit fee calculations. **The dollar values are based on the current fee table as stated in Rule 301, amended May 11, 2001**. Before filing applications please make sure that the rules and fees table are current and valid.

Example 6-1

Question:

Company A is submitting an application for new construction of a hexavalent chrome plating tank and a wet packed scrubber. What are the permit processing fees for this equipment?

Answer:

Equipment	Table 1B Schedule	Permit Processing Fee
Tank, Chrome Plating Hexavalent	C	$2,101.39
Scrubber, Toxics venting	D	$3,731.89
	Total	$5,883.28

Example 6-2

Question:

Company B is submitting applications for three boilers. Boiler 1 & 2 are identical, new construction and rated at 25 million BTU per hour (MMBTU/hr). Boiler 3 was installed in 1998 and is rated at 4.5 MMBTU/hr. What are the permit processing fee for each equipment and the total fees?

Answer:

Equipment	Table 1B Schedule	Fee Adjustment	Permit Processing Fee
Boiler 1, 25 MMBTU/hr	D	none	$3,731.89
Boiler 2, 25 MMBTU/hr	D	- 50% (identical to Boiler 1)	$1,865.95
Boiler 3, 4.5 MMBTU/hr	B	+ 50% (operating w/o P/C)	$ 1,611.11
		Total	$7,208.95

Example 6-3

Question:

Company C is submitting an application for three generators with identical 60-HP emergency internal combustion engines that were installed in 1991 to be operated at various locations in the District. These engines are pre-certified models under the AQMD Certification/Registration Program. What are the permit processing fees for this equipment?

Answer:

Based on Rule 301(c)(1)(H)(iii), the permit processing fee for certified equipment is 50% of Schedule A or $289.56. However, as these engines were installed without obtaining Permit to Construct, the permit processing fee shall be 150% of the above fee, per engine. The discounts for identical permit units do not apply to Certified Equipment Permits and Registration Permits. The total fee for the three generators would be $1,303.02.

CHAPTER VII

CALCULATING CRITERIA POLLUTANT EMISSIONS

7-1 INTRODUCTION

Any regulation, rule or code, whether on a federal, state, or local level, usually sets the maximum allowable limit for the discharge of air contaminants. For example, Rule 462(d)(1)(D) limits the emission of non-methane organic vapors from a "Class A Facility" to not more than 0.08 pounds per thousand gallons of liquid transferred, while any relocated emission source or any new or modified emission source is subject to the provisions of Regulation XIII if it is determined that the use of the source will result in an emission increase of nonattainment air contaminants. These allowable limits are established based on the: (i) concentration of air contaminant per volume or mass of flue gas such as m*g/m*^{3}; (ii) contaminant mass rate such as *lbs/day*; and (iii) mass of air contaminant per volume of the material processed such as *lb/10*^{6} *gallons of material processed*. Emissions are quantified by: (i) conducting emission source tests; (ii) measuring air contaminants using monitoring equipment such as a Continuous Emission Monitoring System (CEMS); (iii) estimating emissions of air contaminants on the basis of an established emission factor, or (iv) mass balance.

The emissions calculated for a permit application will become the basis for the resulting permit. Thus, it is imperative that the emissions are calculated in the most accurate manner available. The resulting calculations will likely become incorporated into the permit as permit conditions, and the facility may have to demonstrate compliance with a source test.

Emission source test results are the most accurate technique for quantifying emissions, provided the test is conducted by qualified personnel and performed in accordance with approved test procedures. There are usually approved testing procedures designed for each air contaminant and possibly from specific permit units. Test methods include: (i) ambient sampling, (ii) a series of stack tests over a period of several hours, (iii) continuous monitoring, or a combination of these-. Previously obtained quality test results from similar equipment may be a good source of emission potential that can be used in the equipment evaluation.

The remainder of this chapter will be devoted to calculation of criteria air contaminants.

7-2 EMISSION ESTIMATION

Criteria air contaminants are described in Section 2-1 of Chapter 2 to include sulfur dioxide (SO_2), lead (Pb), ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), and particulate matter (PM_{10}). In addition to these air pollutants, we will focus our attention on how to calculate emission of volatile organic compounds (VOC) or reactive organic gases (ROG), NO_x, and SO_x.

Notwithstanding the pitfalls of emission source tests and CEMs, the data gathered by these methods are useful for calculating air contaminant emissions. These data, when used in estimating emissions, yield accurate emission results. However, there is a problem, because a permit unit has to be operated in order for these data to be acquired. To allow the permit unit to operate without a permit to construct would violate District Rules 201 and 203, which require a person to obtain an authorization from the Executive Officer prior to building, erecting, installing, altering, replacing, or operating any equipment, which may cause the issuance or control of air contaminants. Therefore, the District has to use other methods for calculating emissions prior to the construction or operation of the permit unit. This other method is accomplished by using emission factors or mass balance to estimate emissions.

Using emission factors to estimate emissions is less accurate than CEMs or source tests. It often results in highly conservative estimates of emissions, especially when used to calculate emissions from a single emission source. It yields valuable results when used for estimating emissions from a large number of emission sources.

Emission factors are usually gathered from several references and published by E.P.A. in The Compilation of Air Pollution Emission Factors, generally referred to as AP-42. (AP-42 is available for download at www.epa.gov/ttn/chief/software under “Air Chief”; the database version is called “Fire 6.23” and is available at the same site.) Emission factors are also compiled from many publications and published by the District in the Annual Emission Package. Some of the emission factors published by the District are established on the basis of emission limitations specified in the Best Available Control Technology (BACT) Guidelines or District rule requirements.

The District allows applicants to use other substantiated emission factors. (Emission factors are normally substantiated with source test data.) In

addition, the District allows applicants to use emission factors provided by the manufacturer of the equipment. In such cases, the applicant is required to attach a copy of the source test report or written emission guarantee provided by the manufacturer with the permit application, unless the factors have been approved by the District.

7-3 CALCULATIONS

The following eight emission rates must be calculated with each permit application package that is submitted to the District. These emission rates are used for point source modeling, rule compliance evaluation, determining needed offsets, and regional modeling to determine future control strategies.

Average hourly uncontrolled emissions (AHU) - The normal or average hourly emission rate of a pollutant from a piece of basic equipment and without benefit of air pollution control equipment, expressed in pounds per hour.

Average hourly controlled emissions (AHC) - The normal or average hourly emission rate of a pollutant from a piece of basic equipment that is controlled by air pollution control equipment, expressed in pounds per hour.

Maximum hourly uncontrolled emissions (MHU) - The maximum hourly emission rate of a pollutant from a piece of basic equipment and without benefit of air pollution control equipment, expressed in pounds per hour.

Maximum hourly controlled emissions (MHC) - The maximum hourly emission rate of a pollutant from a piece of basic equipment that is controlled by air pollution control equipment, expressed in pounds per hour.

Maximum daily uncontrolled emissions (MDU) - The maximum daily emission rate of a pollutant from a piece of basic equipment and without benefit of air pollution control equipment, expressed in pounds per day.

Maximum daily controlled emissions (MDC) - The maximum daily emission rate of a pollutant from a piece of basic equipment that is controlled by air pollution control equipment, expressed in pounds per day.

Average annual emissions (AA) - The normal or average yearly emission rate of a pollutant from a piece of basic equipment that is controlled by air pollution control equipment, expressed in pounds per year.

30 day average controlled emissions (30DA) - The MDC emission rate multiplied by the maximum days operated in any calendar month, and then divided by a constant of 30. (This value is used to establish the NSR requirements under Regulation XIII.)

Example 7-1

Calculate the eight pollutant emissions rates described above for a 20,925,000 BTU per hour natural gas fired boiler. The boiler has an Ultra-low NOx burner and flue gas recirculation (FGR). The average operating schedule is 16 hours per day, 5 days per week, and 50 weeks per year. The maximum operating schedule is 24 hours per day, 5 days per week, and 50 weeks per year. The average loading of the boiler is 40%. BACT was determined to be 9 ppm (10.7lbs/mmcf) NOx in this case. The manufacturer guarantees ROG emissions at 2.8lb /10^6ft3 of natural gas consumed.

Emission factors will be based on BACT limits, Manufacturer's data, or AP-42 if no other information is available. Also, particulate matter emissions (PM) from natural gas combustion are considered all less than 10 microns (PM10)..

Default emission factors for a natural gas fired boiler based on the District's Emission Fee Billing (EFB) Form B1- *External Combustion Equipment* (based on AP 42) are as follows:

Units are in lb/million cubic feet

ROG	UNROG	NOx	SOx	CO	PM
5.5	2.3	100	0.6	84	7.6

AVERAGE EMISSIONS

Average emissions will be based on the normal loading of the boiler and the average working hours per day.

Reactive Organic Gases (ROG) In this case we assume the control equipment (low NOx burner and FGR) has no effect on ROG.

AHU = (0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(2.8 lb ROG/10^6 ft^3)

= 0.022 lb ROG/hr

AHC = AHU = 0.022 lb ROG/hr

AA = (0.022 lb ROG/hr)(16 hr/day)(5 day/wk)(50 wk/yr) = 88 lb ROG/yr

Unreactive Organic Gases (UNROG)

In this case we assume the control equipment has no effect on UNROG.

AHU = (0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(2.3 lb UNROG/10^6 ft^3)

= 0.018 lb UNROG/hr

AHC = AHU = 0.018 lb UNROG/hr

AA = (0.018 lb UNROG/hr)(16 hr/day)(5 day/wk)(50 wk/yr)

= 72 lb UNROG/yr

Sulfur Oxides (SOx)

In this case we assume the control equipment has no effect on SOx.

AHU = (0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(0.6 lb SOx/10^6 ft^3)

= 0.005 lb SOx/hr

AHC = AHU = 0.005 lb SOx/hr

AA = (0.005 lb SOx/hr)(16 hr/day)(5 day/wk)(50 wk/yr) = 20 lb SOx/yr

Carbon Monoxide (CO)

In this case we assume the control equipment has no effect on CO.

AHU = (0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(84 lb CO/10^6 ft^3)

= 0.67 lb CO/hr

AHC = AHU =0.67 lb CO/hr

AA = 0.67 lb CO/hr)(16 hr/day)(5 day/wk)(50 wk/yr) = 2,680 lb CO/yr

Particulate Matter < 10 Microns (PM10) = PM

In this case we assume the control equipment has no effect on PM10.

AHU =(0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(7.6 lb PM/10^6 ft^3) = 0.061 lb PM10/hr

AHC = AHU = 0.061 lb PM10/hr

AA (0.061 lb PM10/hr)(16 hr/day)(5 day/wk)(50 wk/yr) = 244 lb PM10/yr

Nitrogen Oxides (NOx)

AHU = (0.40)(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(100 lb NOx/10^6 ft^3)

= 0.80 lb NOx/hr

AHC = (0.40)(20,925,000 Btu/hr))(1 ft^3/1050 Btu) (10.7 lb NOx/10^6 ft^3)

= 0.0.085 lb NOx/hr

AA = (0.0.085 lb NOx/hr)(16 hr/day)(5 day/wk)(50 wk/yr) = 340 lb NOx/yr

MAXIMUM EMISSIONS

The maximum emissions are calculated at the maximum burner rating and the maximum hours of operation per day.

Reactive Organic Gases (ROG)

In this case we assume the control equipment has no effect on ROG.

MHU = (20,925,000 Btu/hr)(1 ft^3/1050 Btu)(2.8 lb ROG/10^6 ft^3)

= 0.056 lb ROG/hr

MHC = MHU = 0.056 lb ROG/hr

MDU = (0.056 lb ROG/hr)(24 hr/day) = 1.34 lb ROG/day

MDC = MDU = 1.34 lb ROG/day

Unreactive Organic Gases (UNROG)

In this case we assume the control equipment has no effect on UNROG.

MHU = (20,925,000 Btu/hr)(1 ft^3/1050 Btu)(2.3 lb UNROG/10^6 ft^3)

= 0.046 lb UNROG/hr

MHC = MHU = 0.046 lb UNROG/hr

MDU = 0.046 lb UNROG/hr)(24 hr/day) = 1.10 lb UNROG/day

MDC = MDU = 1.10 lb UNROG/day

Sulfur Oxides (SOx)

In this case we assume the control equipment has no effect on SOx.

MHU = (20,925,000 Btu/hr)(1 ft^3/1050 Btu)(0.6 lb SOx/10^6 ft^3)

= 0.012 lb SOx/hr

MHC = MHU = 0.012 lb SOx/hr

MDU = (0.012 lb SOx/hr)(24 hr/day) = 0.29 lb SOx/day

MDC = MDU = 0.29 lb SOx/day

Carbon Monoxide (CO)
In this case we assume the control equipment has no effect on CO.
MHU = (20,925,000 Btu/hr)(1 ft^3/1050 Btu)(84 lb CO/10^6 ft^3)

= 1.67 lb CO/hr

MHC = MHU = 1.67 lb CO/hr

MDU = (1.67 lb CO/hr)(24 hr/day) = 40.1 lb CO/day

MDC = MDU = 40.1 lb CO/day

Particulate Matter < 10 Microns (PM10) = PM
In this case we assume the control equipment has no effect on PM10.
MHU =(20,925,000 Btu/hr)(1 ft^3/1050 Btu)(7.6 lb PM/10^6 ft^3)

= 0.151 lb PM10/hr

MHC = MHU = 0.151 lb PM10/hr

MDU = (0.151 lb PM10/hr)(24 hr/day) = 3.6 lb PM10/day

MDC = MDU = 3.6 lb PM10/day

Nitrogen Oxides (NOx)
MHU = (20,925,000 Btu/hr)(1 ft^3/1050 Btu)(10.7 lb NOx/10^6 ft^3)

= 0.213 lb NOx/hr

MHC = MHU = 0.213 lb NOx/hr

MDU = (0.213 lb NOx/hr)(24 hr/day) = 5.11 lb NOx/day

MDC = MDU = 5.11 lb NOx/day

30 DAY AVERAGE EMISSIONS

The 30 day average will be calculated as follows: 30DA = (MDC)(maximum days per month operated)/30. MDC is from the above calculation. The 30 day denominator is a constant. The maximum operating days can vary from 1 to 30. **Use 23 for a five day work week, 27 for a six day work week, and 30 for a seven day work week**.

Reactive Organic Gases (ROG)
30DA = (1.34 lb ROG/day)(23 day)/30 day = 1.03 lb ROG/day

Unreactive Organic Gases (UNROG)

30DA = (1.10 lb UNROG/day)(23 day)/30 day = 0.84 lb UNROG/day

Sulfur Oxides (SOx)
30DA = (0.29 lb SOx/day)(23 day)/30 day = 0.22 lb SOx/day

Carbon Monoxide (CO)
30DA = (40.1 lb CO/day)(23 day)/30 day = 30.7 lb CO/day

Particulate Matter < 10 Microns (PM10)
30DA = (3.6 lb PM10/day)(23 day)/30 day = 2.76 lb PM10/day

Nitrogen Oxides (NOx)
30DA = (5.11 lb NOx/day)(23 day)/30 day = 3.92 lb NOx/day

The following table summarizes the pollutant emission rates from this boiler.

	AHU	AHC	MHU	MHC	MDU	MDC	AA	30DA
	lb/hr	lb/hr	lb/hr	lb/hr	lb/day	lb/day	lb/yr	lb/day
ROG	0.022	0.022	0.056	0.056	1.34	1.34	88	1.03
UNROG	0.18	0.18	0.046	0.046	1.10	1.10	72	0.84
SOx	0.005	0.005	0.012	0.012	0.29	0.29	20	0.22
CO	0.67	0.67	1.67	1.67	40.1	40.1	2680	30.7
PM10	0.061	0.061	0.151	0.151	3.6	3.6	244	2.76
NOx	0.80	0.085	0.213	0.213	5.11	5.11	340	3.92

CHAPTER VIII

CALCULATING TOXIC POLLUTANT EMISSIONS

CALCULATING TOXIC POLLUTANT EMISSIONS

Rule 1401 requires the AQMD to verify that a new or modified source will not result in the emission of toxic air pollutants that exceed limits set forth in the rule. In order to determine if these limits have been exceeded, one must first identify and quantify toxic pollutant emissions from a source. There are three main factors in determining toxic pollutant emissions. They are control efficiency, fugitive toxic emissions, and toxic emission rate.

The control efficiency is the efficiency of an air pollution control device or system which will be installed to reduce the emissions of the toxic pollutant. Equipment installed to control toxic pollutant emissions are usually identical to that used to control criteria and volatile organic compound (VOC) emissions. Depending on the type of toxic pollutant an applicable control technology should be used. If VOCs are emitted that are toxic, then controls could be thermal oxidation, adsorption, etc. If the toxic compound is a particulate, then a baghouse or high efficiency filter could be used.

Fugitive toxic emissions are the basic emissions from a source that escape collection and are not vented to the control device. This can be due to an inadequate ventilation system or to a process where it is not possible to collect 100% of the basic emissions. Processes that are designed in compliance with recommendations in "Industrial Ventilation" are considered to have no substantial fugitive emissions. Processes that will have fugitive emissions must report these emissions as part of the calculation of controlled emissions.

Toxic emission factors are used to determine an accurate estimate of a source's toxic emission potential and rate. It is advisable to consult with the supervisor of the AQMD permit processing unit (that handles the type of equipment being applied for) to get a consensus on an emission factor before the application is submitted. Toxic emission factors are generally based on some sort of process throughput or production rate. This is important because an accurate maximum throughput is needed to determine the maximum emissions. Sources for toxic emission factors are as follows:

1. District approved source tests for identical or very similar equipment - Source tests when properly conducted are generally the most accurate estimate of potential emissions.

A source test of another piece of equipment that is the same or similar to a permit unit and operates under the same type of conditions will usually mirror its emissions.

2. AP-42 - This is a book of emission factors, including toxic emissions. The emission factors in this book are each a collection and average of source tests performed on group of similar equipment, in most cases.

3. Papers, Reports, Rule Board Packages, etc. - The EPA, ARB, and AQMD, as well as other organizations, periodically publish documents on toxic emitting equipment and emissions factor for various types of equipment. These factors are also usually based on source test results.

4. Manufacturers' Data - Some manufacturers whose equipment produces toxic emissions have done testing on their equipment and will provide this information. For toxic emissions for sources such as coatings, the MSDS sheets should give a percentage of a toxic material that can be used as a worst case emission factor.

5. EPA's Factor Information REtrieval (FIRE) at www.epa.gov/ttn/chief/software. This is basically a computerized version of AP-42. It is set up in a database format.

Once an accurate emission factor has been found, emissions can be calculated. There are three emission values required by the AQMD for equipment that emits any toxic compound listed in Table I of Rule 1401. They are maximum hourly uncontrolled (MHU) emissions, maximum hourly controlled (MHC) emissions, and maximum annual controlled (MAC) emissions. These values are used to determine the health risk associated with the emissions and for statistical purposes at the AQMD. Emissions are calculated in much the same way as the criteria pollutant emissions. The following examples will show a few of the ways in which to calculate toxic emissions.

Example 8-1

A chrome plating shop is planning to install a new hard chrome plating tank, which will emit hexavalent chromium, and a scrubber system as control. The new tank and scrubber system are identical to an existing

system located at the shop. The existing system was source tested in 1999 to show compliance with Rule 1469. Since these two systems are identical and will be operated under the same conditions we can assume the emissions from the new system can be accurately estimated by using the source test data from the existing system. The source test showed an overall efficiency of 99.8%, uncontrolled emissions of hexavalent chrome of 5 milligrams per ampere-hour and controlled emissions of 0.01 milligrams per ampere-hour. The maximum usage of the tank will be 5000 ampere-hours per hour. The maximum operating schedule is 8 hours per day, 5 days per week, and 52 weeks per year. To determine the maximum hourly uncontrolled emissions, take the maximum amp-hr usage in one hour of operation and multiply it by the emission rate.

MHU = 5000 amp-hr/hr x 5 milligrams/amp-hr x 1 lb/454,000 milligrams

MHU = 0.0551 lb/hr of Hexavalent Chrome.

To determine the maximum hourly controlled emissions, take the MHU and multiply it by the control efficiency.

MHC = 0.0551 lb/hr x (1 - .998)

MHC = 0.00011 lb/hr of Hexavalent Chrome.

To determine the maximum annual emissions, take the MHC and multiply it by the number of hours operated per year.

MAC = 0.00011 lb/hr x 8 hr/day x 5 day/wk x 52 wk/yr

MAC = 0.2288 lb/yr of Hexavalent Chrome.

Example 8-2

An eyeglass lens manufacturer uses methylene chloride in their uncontrolled degreaser to clean the lenses. Their current permit to operate limits them to 10 gallons per day usage of methylene chloride. They have submitted a permit application for a change of conditions. The company wants to increase their usage to 12 gallons per day. Their operating schedule is 10 hr/day, 5 day/wk, and 50 wk/yr. To determine the increase in toxic emissions we need to know the density of methylene chloride which is 10.98 pounds per gallon. To determine the maximum hourly uncontrolled emissions multiply the usage per day by the density and then divide by the operating hours per day.

MHU = (12 gal/day - 10 gal/day) x 10.98 lb/gal x 1 day/10 hr

MHU = 2.196 lb/hr of Methylene Chloride.

Maximum hourly controlled emissions, in this case, are the same as MHU. This is because there is no control equipment reducing the emissions from the degreaser.

MHC = MHU = 2.196 lb/hr of Methylene Chloride.

To determine the maximum annual emissions, take the MHC and multiply it by the number of hours operated per year.

MAC = 2.196 lb/hr x 10 hr/day x 5 day/wk x 50 wk/yr

MAC = 5490.0 lb/yr of Methylene Chloride.

Example 8-3

This example is taken from EPA-450/4-88-004 "Estimating Air Toxic Emissions From Organic Storage Tanks". Determine the yearly emission rate of product and of each component from a horizontal above ground, fixed roof storage tank containing (for every 1,750 lb of liquid mixture) 1,600 lb of benzene, 100 lb of toluene, and 50 lb of cyclohexane. The tank is not heated and the average yearly ambient temperature of the area is 67.5^{o}F. The tank is 10 ft in diameter and 17 ft long and the roof and shell are painted aluminum. The tank volume is 10,000 gallons. The number of turnovers per year for the tank is three (i.e., the throughput of the tank is 30,000 gal/yr). (An easier way to calculate storage tanks emissions is through the use of EPA's Tanks 4 program. It is available for free download at www.epa.gov/ttn/chief/software. The District has been using versions of this program for several years.)

Solution:

1. Determine tank type

The tank is a horizontal, fixed roof storage tank.

2. Determine estimating methodology

The product consists of three organic liquids, all of which are miscible in each other and make a homogeneous mixture if the material is well mixed. The tank emission rate will be based upon the properties of the mixture. Since the fixed roof equations were developed for vertical tanks, the diameter and height of the tank will need to be calculated. The components have similar structures and molecular weights, so Raoult's Law will be assumed to apply.

3. Select equations to be used

For a horizontal, fixed roof storage tank, the following equations apply:

$L_T = L_B + L_W$

$L_B = 2.26 \times 10^{-2} M_V (P/P_A - P)^{0.68} D^{1.73} H^{0.51} A_T^{0.5} F_p C K_C$

$L_W = 2.40 \times 10^{-5} M_V P V N K_N K_C$

where:

L_T = total loss, lb/yr of VOC

L_B = breathing loss, lb/yr of VOC

L_W = working loss, lb/yr of VOC

M_V = molecular weight of product vapor, lb/lb-mol

P = true vapor pressure of product, psia

P_A = atmospheric pressure, psia

D = tank diameter, ft

H = average vapor space height, ft

A_T = average diurnal temperature change, ^oF

F_p = paint factor (dimensionless); see Table A-1;

C = tank diameter factor (dimensionless): for diameter $\geq$ 30 feet, C = 1 and for diameter <30 feet, $C = 0.0771 (D) - 0.0013 (D^2) - 0.1334$

K_C = product factor (dimensionless) = 1.0 for volatile organic liquids, 0.65 for crude oil

V = tank capacity, gal

N = number of turnovers per year (dimensionless) = throughput, gal/yr/tank capacity, gal

K_N = turnover factor (dimensionless): for turnovers >36, K_N = 180+N/6N and for turnovers <36, K_N = 1

4. Identify parameters to be calculated or determined from tables

In this example, the following parameters are <u>not</u> specified: M_V, P, A_T, K_C, P_A, C, H, and F_p. Some typical assumptions that can be made are:
F_p = 1.2 for aluminum (specular) paint on roof and shell (see Table A-1)
A_T = 20^{o}F

P_A = atmospheric pressure = 14.7 psia

K_C = 1.0 for volatile organic liquids

Since the emission estimating equations were developed for vertical tanks, some of the horizontal tank parameters must be modified before using the equations. First, assume that the tank is one-half filled. The surface area of the liquid in this case is approximately equal to the length of the tank times the diameter of the tank. In this case, the surface area is 17 x 10 = 170 ft.^{2}. Next, assume that this represents a circle, i.e., that the liquid is in an upright cylinder. Solving for diameter (A = 170 ft^2 = D^2/4) yields an adjusted diameter of 14.7 ft. Thus, a value of 14.7 ft for D should be used in the equations. Since the tank is assumed to be one-half full, the vapor space is equal to one-half the diameter of the tank. Therefore, a vapor space is equal to one-half the diameter of the tank. Therefore, a value of 10 ft x 1/2 = 5 ft for H should be used in the equations.

The tank diameter factor (C) is calculated using the adjusted diameter of 14.7 ft.
$C = 0.0771(14.7) - 0.0013(14.7)^2 - 0.1334$

C = 0.719

If this tank were located underground, then the breathing losses could be assumed to be negligible because the diurnal temperature change (A_T) would be close to zero.

The vapor pressure (P) of the liquid and the molecular weight of the vapor (M_V) still need to be calculated.

5. Calculate mole fractions in the liquid

The mole fractions of components in the liquid must be calculated in order to calculate the vapor pressure of the liquid using Raoult's Law. Note all of the following references to Tables A-2, A-3, etc. are found in EPA-450/4-88-004.

The molecular weight for each component (M_i) can be read from Table A-2.

Component	Amount, lb	M_i	Moles	X_i
Benzene	1,600	78.1	20.5	0.92
Toluene	100	92.1	1.09	0.049
Cyclohexane	50	84.2	0.594	0.027
Total	1,750		22.2	1.00

For benzene,

$X_{benzene} = moles_{benzene}/moles_{total} = 20.5/22.2 = 0.92$

6. Calculate partial pressures and total vapor pressure of the liquid.

The vapor pressure of the mixture may be found by first obtaining the vapor pressures of each component from Table A-2. In this example, the storage tank is painted aluminum. Therefore, the temperature of the stored liquid must be adjusted using Table A-3. Table A-3 indicates that the average yearly temperature must be adjusted by 2.5 degrees to account for the aluminum coating. Therefore, vapor pressure information should be taken from Table A-2 at 67.5 + 2.5 = 70°F.

Component	Vapor pressure at 70°F, psia
Benzene	1.5
Toluene	0.4
Cyclohexane	1.6

According to Raoult's Law, the partial pressure of a component is the product of its pure vapor pressure and its liquid mole fraction.

Component	P_i at 70°F	X_1	$P_{partial}$

Benzene	1.5	0.92	1.38
Toluene	0.4	0.049	0.0196
Cyclohexane	1.6	0.027	0.0432
		1.00	1.44

The vapor pressure of the mixture is 1.44 psia.

7. Calculate mole fractions in the vapor

The mole fractions of the vapor phase are based upon the partial pressure that each component exerts (calculated in Step 6). The total vapor pressure of the mixture is 1.44 psia; so, for benzene:

$Y_{benzene} = P_{partial}/P_T = 1.38/1.44 = 0.958$

where:

$Y_{benzene}$ = mole fraction of benzene in the vapor

$P_{partial}$ = partial pressure of benzene, psia

P_T = total vapor pressure of the mixture, psia

Similarly, for toluene and cyclohexane,

$Y_{toluene} = 0.0196/1.44 = 0.0136$

$Y_{cyclohexane} = 0.0432/1.44 = 0.03$

The vapor phase mole fractions sum to 1.0.

8. Calculate molecular weight of the vapor

The molecular weight of the vapor is dependent upon the mole fractions of the components in the vapor.

$M_V = \_M_iY_i$

where:

M_V = molecular weight of the vapor, lb/lb-mole

M_i = molecular weight of the component, lb/lb-mole

Y_i = molecular fraction of the component in the vapor

Component	M_i	Y_i	$(M_i)(Y_i)$
Benzene	78.1	0.958	74.82
Toluene	92.1	0.0136	1.253
Cyclohexane	84.2	0.03	2.526
		1.00	78.6

The molecular weight of the vapor is 78.6 lb/lb-mol.

9. Calculate weight fractions of the vapor

The weight fractions of the vapor are needed to calculate the amount of each component emitted from the tank. The weight fractions are related to the previously calculated mole fractions. First, assume that there are 100 moles of vapor present. Using this assumption, the weight fractions calculated would be valid no matter how many moles actually are present.

Component	No. of Moles	M_i	Pounds	Weight fraction
Benzene	958	78.1	74,820	0.952
Toluene	13.6	92.1	1,253	0.0159
Cyclohexane	30.0	84.2	2,526	0.0321
	1,000		78,599	1.00

The weight fraction of each component is the pounds of that component divided by the total pounds of the mixture. For example, weight $\text{fraction}_{benzene}$ = 74,820/78,599 = 0.952.

10. Calculate total VOC emitted from the tank

The total VOC emitted from the tank is calculated using the equations identified in Step 3 and the parameters calculated in Steps 4 through 9.

$L_T = L_B + L_W$

where:

L_T = total loss, lb/yr of VOC

L_B = total breathing loss, lb/yr of VOC

L_W = total working loss, lb/yr of VOC

$L_B = 2.26 \times 10^{-2} M_V (P/P_A - P)^{0.68} D^{1.73} H^{0.51} A_T^{0.5} F_p C K_C$

where:

M_V = 78.6 lb-mol (from Step 8)

P = 1.4 psia (from Step 6)

P_A = 14.7 psia (from Step 4)

D = 14.7 ft (from Step 4)

H = 5 ft (from Step 4)

A_T = 20^{o}F (from Step 4)

F_p = 1.2 (from Step 4)

C = 0.719 (from Step 4)

K_C = 1 (from Step 4)

$L_B = 2.26x10^{-2} (78.6) (1.4/14.7^{-1.4})^{0.68} (14.7)^{-1.73} (5)^{0.51} (20)^{0.5} (1.2) (0.719)$

(1)

L_B = 352 lb/yr of VOC emitted

$L_W = 2.40x10^{-5} M_V P V N K_N K_C$

where:

M_V = 78.6 lb/lb-mol (from Step 8)

P = 1.4 psia (from Step 6)
V = 10,000 gal (given)
N = 3 given
K_N = 1 (from Step 3)
K_C = 1 (from Step 4)
$L_W = 2.40x10^{-5} (78.6) (1.4) (10,000) (3) (1) (1)$
L_W = 79.2 lb/yr of VOC
L_T = 352 + 79.2
L_T = 431 lb/yr of VOC emitted from the tank

11. Calculate amount of each component emitted from the tank

The amount of component emitted is the weight fraction of that component in the vapor (calculated in Step 9) times the amount of total VOC emitted.

	Weight	Pounds
Component	fraction x 431 lb/yr =	emitted/yr
Benzene	0.952	410
Toluene	0.0159	6.85
Cyclohexane	0.0321	13.8

For benzene

0.948 lb of benzene/1 lb of VOC x 431 lb/yr of VOC = 410 lb/yr of benzene emitted

CHAPTER IX

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES, NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS/REGULATIONS IX & X

STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (REGULATIONS IX & X)

Regulations IX & X are much like a table of contents for federal regulations that have been adopted by the AQMD. The permit application training graduate will be responsible for determining if any of the rules in Regulation IX & X apply to their source. If they do, include in the permit application package the analysis that shows the source complies with any applicable rules.

Regulation IX, Standards of Performance for New Stationary Sources, of the AQMD's Rules and Regulations is basically a listing of subparts of the Code of Federal Regulations (CFR), Part 60, Chapter I, Title 40. This regulation states that all new or modified sources in the AQMD are required to meet the standards, criteria, and requirements set forth in each applicable subpart. These requirements usually set emission limits, require source testing and in some cases continuous emission monitoring systems (CEMS).

Regulation X, National Emission Standards for Hazardous Air Pollutants (NESHAP), of the AQMD's Rules and Regulations is a listing of subparts of the Code of Federal Regulations (CFR), Part 61, Chapter I, Title 40. This regulation applies to any owner or operator of any stationary source for which a standard is prescribed under this regulation. The requirements in each subpart usually set emission limits and require source testing.

The EPA has expanded this list of hazardous air pollutants from 7 to 189 pursuant to Title III of the CAAA of 1990. The EPA is required to develop NESHAPS for 174 source categories by the year 2007. As of March 1996, 16 additional NESHAPS have been adopted. To implement the NESHAP, the AQMD will either amend an existing rule (e.g. Rule 1169) or adopt a NESHAP by reference in Regulation X.

Example 9-1

A company is planning to install a 300 million BTU per hour boiler that is fired on natural gas. Not only would this equipment be subject to all other AQMD Rules and Regulations, but it would also be subject to Regulation IX. Regulation IX requires this boiler to comply with the requirements of CFR, Part 60, Chapter I, Title 40, Subpart D. This subpart will mandate air

emission source testing for particulate matter and nitrogen oxides following EPA methods. The limit for particulate matter is not more than 0.10 pounds per million BTU of fuel burned and an opacity of not more than 20%. The limit for nitrogen oxides is not more than 0.20 pounds per million BTU of fuel burned. A CEMS will be required for nitrogen oxides if the tested emissions are greater than 0.14 pounds per million BTU.

CHAPTER X

PROHIBITORY RULES/REGULATION IV

REGULATION IV

Regulation IV is a collection of general prohibitory rules. In general, the rules in this regulation are aimed at all sources in the District unless otherwise noted. Of these, Rule 401-Visible Emissions and Rule 402-Nuisance are typically evaluated for all applications received. The other rules are evaluated, if applicable, based on the source type.

CHAPTER XI

SOURCE SPECIFIC STANDARDS/REGULATION XI

REGULATION XI

Regulation XI is a collection of rules that each apply to a specific type of equipment or process. Each rule in this regulation applies to a certain equipment type and/or industry. In general, these rules set emission or operating standards and provide a process with which to show compliance. The range of rules in this regulation can be described in three levels. The first level are the simple rules like 1101 which take very little analysis. The second level rules are more complicated and examples are 1136, 1146, 1169, and 1110.2. The last level are the rules that are fairly complex and include 1109 and 1135. The certified permit processor should review all of the Regulation XI rules in order to determine which ones apply. Once it has been decided that a Regulation XI rule applies, the certified permit processor should determine if the source is in compliance with that rule and include the analysis in the application report.

Since these rules are so individual by nature, the best way to show how to comply with them is by example. The following examples are of hypothetical equipment and companies for several Regulation XI rules.

Example 11-1

Question:

Company A has four Internal Combustion engines (ICEs) driving process pumps. Two of the ICEs are rated at 635-HP, fired on natural gas, and are full time duty engines. The other two ICEs are emergency standby engines that will be operated less than 200 hours per year. They are fired on diesel fuel and are also rated at 635-HP. The four engines were issued permits by the District in 1985. Determine how this company can comply with Rule 1110.2.

Answer:

The first point of showing compliance would be to recognize that the two emergency engines operated less than 200 hours per year are exempt from the requirements of this rule per Rule 1110.2(h)(1)(c). For the remaining two engines, the options available, according to Rule 1110.2(c) are: (i) to replace the ICEs with electric motors, or, (ii) to install control equipment to meet the emission limits.

If they are to replace the ICEs with electric motors they must have submitted an emission control plan, described in 1110.2(d). By 4/30/98 they must submit applications for permits to construct and operate the motors if needed, and initiate equipment installation by 9/30/99. By 12/31/99, the system should be in compliance with their approved emission control plan.

If the company decides to install control equipment to meet the limits of this rule, then they must submit an emission control plan, described in 1110.2(d). They need to submit applications for permit to construct and operate to modify existing equipment and install new control equipment. The equipment must meet the emission limits of 1110.2(c)(2), which are maximums of carbon monoxide of 2000 ppm, oxides of nitrogen of 36 ppm, and reactive organic gases of 250 ppm; all measured by volume corrected to 15% oxygen on a dry basis and averaged over 15 minutes.

Example 11-2

Question:

Battery Recycling Co. operates a lead recovery furnace which it uses to recover the lead from automotive batteries in a secondary smelting process. Determine if this equipment is subject to Rule 1101, and if so, what are the requirements for compliance?

Answer:

Section 1101(b) states that this rule applies to furnaces used to recover lead from automotive batteries, so it will apply in this case. Section 1101(a) states that there are two emission limits which must be met by this furnace. They are a maximum of 200 ppm of sulfur oxides expressed as sulfur dioxide calculated on a dry basis and measured over a 15 minute averaging period and a maximum of 2.1 kilograms of sulfur oxides per metric ton of process weight expressed as sulfur dioxide.

Example 11-3

Question:

Polytronics, Inc. operates an open top vapor degreaser. This degreaser has a surface area of 12 ft^2, a roll top cover, a shut down airtight cover, a solvent drain area, a freeboard ratio of 1.0, a refrigerated freeboard chiller

with an outlet temperature of 40^{o}F, and all required safety switches. Determine if this equipment is meeting the requirements for compliance with Rule 1122.

Answer:
Section 1122(c) requires this type of degreaser to have a cover to be used during operation, a cover to prevent vapor escape during shutdown, and a device to catch drained solvent such that it is returned to the degreaser. This equipment has all of these so it is in compliance with this section.

Section 1122(e) requires this type degreaser to have vapor level, condenser water flow, and spray pump safety control switches; a freeboard ratio of 1.0; and a refrigerated freeboard chiller with an outlet temperature of 40^{o}F. The degreaser also has all of this equipment so it is in compliance with this section.

To bring the equipment into final compliance, the degreaser must be operated in compliance with other sections of Rule 1122 also, including 1122(c)(2), 1122(e)(6), and 1122(k).

Example 11-4

Question:

Autoshine Co. is an automobile detailing and repair shop that also operates a spray booth in which they spray paint Group II vehicles only, as defined in Rule 1151(b)(18). The coatings will be applied using HVLP spray gun. The company will be using primer sealer with a VOC content of 3.5 lb/gal (420 g/L), and a general topcoat with a VOC content of 3.5 lb/gal (420 g/L). The cleanup solvent used for cleaning the HVLP gun has a VOC content of 800 grams per liter. The cleaning of equipment will take place in a totally enclosed system. Determine if this equipment complies with Rule 1151.

Answer:

According to Rule 1151(c)(5), the company will comply with the cleaning solvent requirements by using a cleanup solvent that has a VOC content of less than 950 grams per liter. The transfer efficiency requirement is met by using HVLP gun. Both the sealer and the topcoat meet the VOC content requirements under 1151(c)(1)(B). Finally, the facility needs to maintain records of all coatings and solvents used.

Example 11-5

Question:

A local community college has four small boilers used to supply hot water at the campus. Boiler #1 is rated at 2,500,000 BTU per hour and uses approximately 10,000 therms per year. Boiler #2 is rated at 4,500,000 BTU per hour and uses approximately 30,000 therms per year. Boiler #3 is rated at 2,100,000 BTU per hour and uses approximately 8,000 therms per year. Boiler #4 is rated at 3,000,000 BTU per hour and uses approximately 12,000 therms per year. All of the boilers are fired on natural gas and are operating under valid permits to operate issued by the District. Determine what must be done to bring these boilers into compliance with Rule 1146.1.

Answer:

All of the boilers are subject to this rule since they are rated between 2,000,000 to 5,000,000 BTU per hour. Boiler #1, #3, and #4 use less than 18,000 therms per year and would be subject to section 1146.1(c)(2). Boiler #2 would be subject to section 1146.1(c)(1).

To meet the requirements of this rule Boiler #2 will have to be modified to meet a NOx limit of 30 ppm and a CO limit of 400 ppm. They will have to submit permit applications for modifications to the boiler.

One compliance plan, as described in section 1146.1(c)(3), would have to be submitted for the three remaining boilers to describe how they will meet the requirements of section 1146.1(c)(2). These would be either having an oxygen trim system, being tuned up at least twice a year, or meeting the emission limits of section 1146.1(c)(1). A totalizing fuel meter would also be required for compliance with section 1146.1(c)(4).

Example 11-6

Question:

Big Al's Chrome Plating Co. was granted a permit to construct for a scrubber and for a hard chrome plating tank. A source test has been performed and the results show a controlled annual emission rate of 3.7 pounds per year of chromium emissions and 0.031 milligrams chromium

per ampere-hour. The tested efficiency of the scrubber was 99.3%. As required in the permit to construct conditions, a totalizing ampere-hour meter was installed for record keeping. Does this equipment comply with Rule 1169?

Answer:

With an annual emission rate of greater than two but less than ten pounds per year, the equipment is subject to the requirements of 1169(b)(2). This section requires a control efficiency of at least 99% or an emission rate of not more than 0.03 milligrams per ampere-hour. They do not meet the emission rate but do meet the efficiency requirement, so they comply with this section. They have also installed the ampere-hour meter as required in section 1169(c)(2). This equipment is in compliance with the requirements of Rule 1169.

CHAPTER XII

TOXIC AND OTHER NON-CRITERIA POLLUTANTS/REGULATION XIV

TOXIC AIR CONTAMINANTS (REGULATION XIV)

Regulation 1401 - New Source Review of Toxic Air Contaminants

Regulation 1401 - New Source Review of Toxic Air Contaminants

This rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and noncancer acute and chronic hazard index (HI) from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants listed in Table I. The rule establishes allowable risks for permit units requiring new permits pursuant to Rules 201 or 203.

Carcinogenic Toxic Air Contaminants

Cancer Risk

- Based on a 70 year lifetime exposure or 46 years for commercial workers.
- Calculate cancer risk and cancer burden based if the TACs emitted are listed in Table 1 of Rule 1401.
- Unit risk factor - estimated probability of a person contracting cancer as a result of a constant exposure to an ambient air concentration of 1 ug/m3 of the TACs over a 70 year lifetime.

Non-Carcinogenic Health Effects

- Acute and chronic health effects
- Short term exposures and long term chronic health effects with different averaging times: 1 hour, 4 hours and 7 hours.
- Each TAC may affect one or more target organs.
- Calculate hazard index based on list of substances that have an established Reference Exposure Level (REL) and the total impact on each target organ.

Regulation 1401 - New Source Review Of Toxic Air Contaminants

- Limits Cumulative Maximum Individual Cancer Risk (MICR), excess cancer burden and non-cancer health effects (acute and chronic)
- Applies to all applications received after June 1, 1990
- Applies to emission increases from new, relocated or modified permit units
- Cumulates risk from sources that are within 100 meters of each other and that were permitted on or after June 1, 1990.

Requirements:

Cancer risk

The cumulative risk from a new, modified or relocated permit unit and from any other permit unit for which an application has been submitted after June 1, 1990, the MICR shall not exceed, at any receptor location:

- 1 in a million without T-BACT; or,
- 10 in a million with T-BACT; and,
- 0.5 excess cancer cases in the population subject to the above risk levels.

Non-cancer health Effects (Hazard Index)

The cumulative increase in total acute and chronic Hazard Index (HI) risk from a new, modified or relocated permit unit and from any other permit unit for which an application has been submitted after September 8, 1998, the HI for either acute of chronic shall not exceed 1.0, at any receptor location:

Procedure In Calculating Cancer Risk

Determine the type(s) of carcinogenic air contaminant(s) released. If it is on the list in Table 1, proceed to step 2, otherwise, Rule 1401 does not apply.

Check the deemed complete date of the application with the date the TACs was listed in the rule. If the application was deemed complete before the TACs' effective date of listing in the rule, then do not calculate the risk for that that TAC

Calculate annual emissions based on.

permit condition limits; or,

maximum rated capacity and annual operating hours and actual materials processed.

Screening Analysis - Tier I and Tier II

Detailed Risk Analysis -Tier III and Tier IV

Tier I - See Table 1A of Risk Assessment Procedures for Rule 1401 and 212

Compare emissions with the limits in the table. If the emission are less than the allowed limits that is equivalent to a risk of 1 in a million, then it passes the requirements of Rule 1401.

Tier II - Screening Anlysis - See Tables 1A to 11 in Risk Assessment Procedures for Rule 1401 and 212

Determine concentration (X/Q) based on operating scenario, release height, and receptor distance from Risk Assessment Guidelines or from dispersion modeling.
Calculate MICR for two receptors, commercial and residential, using the following relationship.

$MICR = \Sigma\ Q \times X/Q \times URF \times MP \times LEA \times MET$

where Q = annual emissions in tons/year
where X/Q = concentration/per unit emissions = (ug/m3)/(tons/yr)
URF = unit risk factor = (ug/m3)-1
MP = multipathway exposure route adjustment
LEA = lifetime exposure adjustment
MET = meteorological correction factor

If the risk is less than 1 in a million, or 10 in a million with T-BACT, the permit is approved, otherwise it is denied.

Calculate the MICR for the closest residential receptor, if closer than the commercial receptor.

If the risk is greater than 1 in a million, calculate the cancer burden.

Calculation of Hazard Index- Acute and Chronic

Determine the deemed complete date of the application. If the application was deemed complete before September 8, 1998, then do not evaluate for Hazard Index. If the application was deemed complete after September 8, 1998, then evaluate those TACs that have effective date of listing prior to the deem complete date.
Calculate annual emissions and hourly emissions based on.
permit condition limits; or,
maximum rated capacity and annual operating hours and actual materials processed.
Determine concentration (X/Q) based on operating scenario, release height, and receptor distance from Risk Assessment Guidelines or from dispersion modeling.
Hazard Index = [Concentration] / REL for each target organ.
Total the impacts on each target organ and pick the highest value.

For Chronic Hazard Index
Total HIC target organ = {Σ [QyrTAC x (X/Q) x MET x MP]/Chronic RELTAC }target organ

For Acute Hazard Index
Total HIA target organ = {Σ [QhrTAC x (X/Q)hr]/Acute REL TAC }target organ

HIA= [(Qhr x (X/Q)max)/REL] x AF
Where,
AF is the adjustment factor developed for compounds with RELs averaged over 4, 6, and 7.

EXEMPTIONS

- Change of ownership or permit renewal;
- Modification or relocation that causes a reduction or no increase in the risk or cancer cases at any receptor location;
- Functionally identical replacement with no increase in maximum rating or emissions or carcinogenic air contaminants;
- Emergency internal combustion engines as per Rule 1304
- Equipment Previously Exempt Under Rule 219 -1 year restriction to file applications

- Contemporaneous emission reduction in actual emissions such that the risk at any receptor location is lower prior to the installation, modification, or relocation; and, the emissions reductions are permanent, verifiable and enforceable; and, T-BACT is used on the new equipment
- Wood Product Stripping provided applications are submitted on or after July 10, 1998 and before January 19, 2000 and the risk is does not exceed 100 in a million

Risk assessment procedures, including procedures for a simple risk screening, were developed by South Coast Air Quality Management (AQMD) staff for the adoption of Rule 1401 - New Source Review for Toxic Air Contaminants, in June 1990.
The purpose of this document is to:

- assist applicants and engineers to help evaluate Rule 1401 compliance;
- provide explanations and sample calculations; and
- provide industry worksheets.

This document describes the procedures for preparing risk assessments under Rule 1401 and Rule 212 – Standards for Approving Permits. It is intended to be a "living" document. That is, as new toxic air contaminants (TACs) are added, risk values changed, or procedures revised, the document will be updated. Past procedures will be archived and TAC listings have been separated by the time period of significant Rule 1401 changes (see attachments).
This can be assessed at http://www.aqmd.gov/permit/RiskAssessment.html

CHAPTER XIII

NEW SOURCE REVIEW/REGULATION XIII

13-1 INTRODUCTION

The New Source Review (NSR) concept dates back to the enactment of the federal Clean Air Act (CAA) of 1970. Therefore, it is important that the act be addressed to understand the purpose of NSR.

The provisions of the federal CAA of 1970 include: (i) a mandate for the EPA Administrator to establish national ambient air quality standards (NAAQS) for all criteria air contaminants; (ii) a requirement for state governments to adopt a State Implementation Plan (SIP), which, if implemented and enforced, will allow states to attain and maintain the NAAQS; (iii) a requirement for state governments to include, as part of their SIP for the attainment and maintenance of NAAQS, a "preconstruction review" program for new stationary sources or for major modification or reconstruction of existing sources; and (iv) an authority given to the Administrator of EPA to establish emission standards for new sources or for major modification or reconstruction of existing sources (these standards are called "New Source Performance Standards"). In order for our state government to fulfill its responsibility under the federal CAA, the California Legislature created the State Air Resources Board (ARB) and charged it with specific duties, such as:

(i) dividing our state into air basins;

(ii) establishing state ambient air quality standards (SAAQS) for each basin. These standards are, in some cases, more stringent than NAAQS;

(iii) preparing the SIP required by the federal CAA;

(iv) coordinating all the activities of regional and local agencies directed toward complying with the federal CAA;

(v) ensuring that regional and local agencies present, adopt, and enforce programs necessary for complying with SAAQS and NAAQS; and

(vi) establishing criteria for designating an air basin in attainment or nonattainment for any SAAQS. [Health and Safety Code, Sec. 39607(e)].

In addition, the California Legislature enacted the California Clean Air Act (CCAA). The goal of CCAA is for each air district to make an earnest attempt for the attainment and maintenance of SAAQS for ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2),

and nitrogen dioxide (NO_2) by the earliest practicable date. The CCAA required air districts that ARB has designated as nonattainment areas for O_3, CO, SO_2, and NO_2 to prepare a plan for attaining and maintaining SAAQS. Furthermore, the CCAA sets forth a scheme in which the air district's plans will achieve an annual district - wide emission reduction of "5 percent for each nonattainment air contaminant or its precursor, averaged every consecutive three-year period."[1]

The federal CAA of 1970 played an important role in the development of NSR. A preconstruction review program in areas which have attained NAAQS is typically called "Prevention of Significant Deterioration" (PSD), while the program is called NSR in areas which have not attained NAAQS. Whether the program is called NSR or PSD, its primary goal is to provide an "overview of a proposed project before construction to ensure that the project will meet all requirements."[2] Many air districts in our state are non-attainment areas. For example, the Air Resources Board, as shown in Table 2-5 of Chapter 2, has designated the South Coast Air Basin (Basin) as "non-attainment" in all but two standards (NAAQS for Lead [Pb] and Sulfur Dioxide [SO_2]). As a result of air pollution problems facing air districts across the state, many air districts have established NSR programs. The AQMD NSR program is addressed under District Regulation XIII, and it fulfills the federal CAA requirement for each state government to establish a preconstruction review program. The AQMD PSD program is addressed under Regulation XVII. This chapter will focus on the AQMD NSR program.

13-2 REGULATION XIII

Regulation XIII was originally adopted on October 5, 1979. Regulation XIII applies to non-RECLAIM pollutants. Rule 2005 includes NSR requirements for facilities participating in RECLAIM. Regulation XIII has gone through many amendments, including significant revisions that became effective in October 1990 and February 1995.

Regulation XIII - NSR consists of nine rules which, together with Rule 2005 - NSR for RECLAIM, set forth a pre-construction review program for new or modified sources located in the AQMD. The objective of the AQMD's NSR program is to ensure that the construction of new sources and the modification of existing sources does not interfere with progress towards attainment and maintenance of the National Ambient Air Quality Standards (NAAQS).

There are three basic components of NSR: BACT, offsets, and modeling. To reduce emissions and encourage the development of new technology, NSR requires new and modified equipment to apply BACT and obtain emission offsets in order to secure a Permit to Operate for a new or modified source in the AQMD. Modeling may also be

required in certain cases. Although some exemptions are available from the modeling and offset requirements of NSR, BACT applies in all cases.

Additional amendments to Regulation XIII are in progress at the time of the revisions to this document. Certified Permit Professionals are expected to keep current with rule changes. The remainder of this chapter will focus on the following provisions of the rules:

- The purpose and the applicability of Regulation XIII (Rule 1301);
- The requirements of Regulation XIII (Rule 1303);
- Exemptions (Rule 1304);
- Emission Calculations (Rule 1306);
- Emission Reduction Credits (Rule 1309); and
- Priority Reserve (Rule 1309.1).

13-2.1 PURPOSE AND APPLICABILITY OF REGULATION XIII

Regulation XIII sets forth a system that allows for continued economic growth in the district while providing rigorous pre-construction review of applications for new, modified or relocated sources to ensure that their operation will not impede progress toward attainment of NAAQS or SAAQS. Regulation XIII also limits emission increases of ammonia and ozone depleting compounds (ODCs) by requiring the use of the most stringent emission control technique.

Air contaminant is defined in Rule 1302(a) as "any air pollutant for which there is a national ambient air quality standard, or precursor to such air pollutant, including but not limited to: carbon monoxide, sulfur dioxide, nitrogen oxides, particulate matter, lead compounds and volatile organic compounds." Rule 1302 defines “Volatile Organic Compounds (VOCs)” as any volatile compound of carbon, excluding acetone and methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides, ammonium carbonate, ODCs, ethane, HCFC-124, HFC-125, HFC-134, HFC-134a, HFC-152a and perfluorocarbons listed under 40 CFR 51.100(s) and exempt compounds.

Generally, new permit units or modifications to existing permit units are subject to the requirements of this regulation, provided they have the potential to cause the issuance of any nonattainment air contaminant or ammonia. The term permit unit and source are essentially interchangeable. The term "permit unit" is defined in Rule 1302 as "any

article, machine, equipment, or other contrivance, or combination thereof, which may cause or control the issuance of air contaminants that is not exempt from permit requirements." The term “source” means any individual permitted unit, piece of equipment, article, machine, process, contrivance, or combination thereof, which may emit or control an air contaminant. This includes any permit unit at a non-RECLAIM facility and any device at a RECLAIM facility.

To determine whether a source is subject to this regulation is simple - NSR applies to all new equipment and modified equipment that increases or controls any of the nonattainment air contaminants or ammonia. In the case of modifications, one has to address the issue of relocation, physical changes in permit units, changes in the methods of operation of permit units, and modifications by addition to existing permit units prior to determining whether the modifications will trigger NSR. These issues will be discussed in later sections.
Several versions of NSR could potentially apply to different equipment, depending on the date applications were submitted. Permit units are exempt from the provisions of the June 28, 1990 version of Regulation XIII if their applications for permits to construct were deemed complete prior to October 1, 1990. They may, however, be subject to the previous versions of Regulation XIII. Applications for permits to construct deemed complete on or after October 1, 1990, and before February 1, 1996 are subject to the requirements of the 1990 regulation regardless of the date of installation. Applications deemed complete on and after February 1, 1996, are subject to rules as amended on December 7, 1995.

13-2.2 REQUIREMENTS OF REGULATION XIII (RULE 1303)

For compliance with NSR, the processing engineer has to ensure that the:

- permit unit employs control techniques representing the Best Available Control Technology (BACT);
- emissions from the permit unit will not cause a significant increase in air quality concentration of any pollutant with an applicable NAAQS or SAAQS;
- emissions from the permit unit are mitigated (emission offsets), when required; and
- facility complies with all District rules and regulations.

13-2.2.1 BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Best Available Control Technology (BACT) is defined in Regulation XIII, Rule 1302 as "the most stringent emission limitation or control technique which:

1. has been achieved in practice for such category or class of source; or

2. is contained in any state implementation plan (SIP) approved by the United States Environmental Protection Agency (EPA) for such source category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed permit unit demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control is not presently achievable; or

3. is any other emission limitation or control technique found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the AQMD Governing Board."

The South Coast Air Quality Management District (AQMD) Regulation XIII – New Source Review (NSR) and Regulation XX – RECLAIM, require applicants to use Best Available Control Technology (BACT) for new sources, relocated sources, and for modifications to existing sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound (ODC), or ammonia. Additionally, Regulation XIII requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the BACT requirements for commonly permitted equipment. The BACT Guidelines were first published in May 1983, and later revised in October 1988. The Guidelines consisted of two parts: Part A – Policy and Procedures, and Part B – BACT Determinations. Part A provided an overview and general guidance while Part B contained specific BACT information by source category and pollutant.

On December 11, 1998, the Governing Board approved a new format for listing BACT determinations in Part B of the Guidelines. While the previous part B of the BACT Guidelines specified BACT requirements and set out source category determinations which could be interpreted as definitive, the new format simply provides listings of recent BACT determinations by AQMD permitting staff and others as well as information on new and emerging technologies. Part B of the AQMD BACT Guidelines now follows the same outline as the permit listings in the California Air Pollution Control Officer Association (CAPCOA) BACT Clearinghouse and the United States Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse.

The public participation process was also enhanced to include technical review and comments by a focused Scientific Review Committee (SRC) at periodic intervals, prior to the updates of the AQMD BACT Guidelines. At the same time, the Board established a 30-day notice period for the SRC and interested persons to review and comment on AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.

As a result of amendments being proposed to AQMD's New Source Review (NSR) regulations in September 2000, the BACT Guidelines will be separated into two: one for major polluting facilities and another for non-major (minor) polluting facilities. (See Chapter 2 in the Overview for how to determine if a facility is major or minor).

The BACT Guidelines for major polluting facilities include:

- Part A: Policy and Procedures for Major Polluting facilities, and
- Part B: LAER/BACT Determinations for Major Polluting Facilities.

The BACT Guidelines for non-major polluting facilities include:

- Part C: Policy and Procedures for Non-Major Polluting Facilities, and
- Part D: BACT Guidelines for Non-Major Polluting Facilities.

Both the format of the guidelines and the process for determining BACT are significantly different between major and non-major polluting facilities. Major polluting facilities that are subject to NSR are required by the Clean Air Act to have the Lowest Achievable Emission Rate (LAER). LAER is determined at the time the permit is issued, with little regard for cost, and pursuant to USEPA's LAER policy as to what is achieved in practice. The Part B BACT and LAER determinations for major polluting facilities are only examples of past determinations that help in determining LAER for new permit applications.

For non-major polluting facilities, BACT will be determined in accordance with state law at the time an application is deemed complete. For the most part, it will be as specified in Part D of the BACT Guidelines. Changes to Part D for minor source BACT (MSBACT) to make them more stringent will be subject to public review and AQMD Board approval, in view of cost considerations.

In order to distinguish between BACT for major sources and BACT for minor sources, this document will use the following nomenclature for BACT:

- LAER for BACT at major polluting facilities

- MSBACT for BACT at non-major polluting facilities

In order for applicants to satisfy the provision of Rule 1303 which requires that BACT be utilized for new emission sources or modifications of existing emission sources, the Governing Board charged the Executive Officer with the following responsibilities:

- Periodic publication of BACT Guidelines, which show the administrative policies and BACT requirements for commonly evaluated emission sources;

- Presentation of procedures for determining BACT requirements for emission sources which do not have established BACT requirements. These BACT requirements need to be devised on the basis of the definition of BACT in Rule 1302(d) as well as the administrative policy and BACT requirements in the guidelines;

- Establishment of BACT requirements for emission sources, which are owned or operated by small business with emphasis on the cost-effectiveness of the control technology; and

- Establishment of a Clean Fuel Policy with the intent of phasing out the use of diesel, fuel oil, and solid fossil fuel in stationary sources. This policy requires consideration of methanol and other clean fuel as BACT requirements for stationary sources.

13-2.2.2 MODELING - RULE 1303(B)(1)

As part of the strategy to achieve ambient air quality standards, federal and state laws require the development and implementation of air quality permitting programs, commonly known as New Source Review (NSR) programs. Local NSR programs must, at a minimum, comply with the requirements established pursuant to federal and state law. The general requirements of NSR programs include: (1) pre-construction review; (2) the installation of Best Available Control Technology (BACT); and, (3) the mitigation of emission increases by providing emission offsets. To satisfy the requirements of pre-construction review listed above, the SCAQMD requires computer modeling for any new or modified source that is increasing emissions. The modeling requirement has been part of NSR since its inception on October 8, 1976. The form of the modeling requirement has varied over the years.

Prior to the April 2001 amendments to Rule 1303 and 2005, all applicants for new or modified sources of emissions must substantiate with modeling that the new facility or modification will not cause a significant increase in an air quality concentration as specified in Rule 1303 (Table A-2, Appendix A). The amendments revised the modeling standard for sources locating in an attainment sub-region of the district such that the proposed new emissions plus the measured background could not create a violation of the standard. In sub-regions that do not meet the

ambient standards, the modeling criteria will remain the same; the new emissions may not cause a significant increase in air quality concentration as set forth in Rule 1303 Table A-2.

To simplify the process, a two-step process to determine compliance with the modeling requirements was created. The two steps are:

1. Screening Analysis - if the emission rate from the source (combustion and non-combustion) does not exceed the limits in Table A-1, then no further analysis required and compliance with the requirement is established.

2. Detailed Analysis - If the emissions exceed the levels in Table A-1, then the detailed analysis is needed. Typically, this would require the use of a computer dispersion program to determine the concentration level.

SCREENING ANALYSIS

Compare the emissions from the source you are applying for to those in Table A-1. If the emissions are less than the allowable emissions, no further analysis is required. If the emissions are greater than the allowable emissions, a more detailed air quality modeling analysis is required.

Table A-1

Allowable Emissions
for Noncombustion Sources and for
Combustion Sources less than or equal to 40 Million BTUs per hour

Heat Input Capacity (million BTUs/hr)		NO_X (lbs/hr)	CO (lbs/hr)	PM_{10} (lbs/hr)
Noncombustion Source		0.068	3.7	0.41
	< 2	0.20	11.0	1.2
>2	< 5	0.31	17.1	1.9
>5	< 10	0.47	25.9	2.8
>10	< 20	0.86	47.3	5.2
>20	< 30	1.26	69.3	7.6
>30	≤40	1.31	72.1	7.9

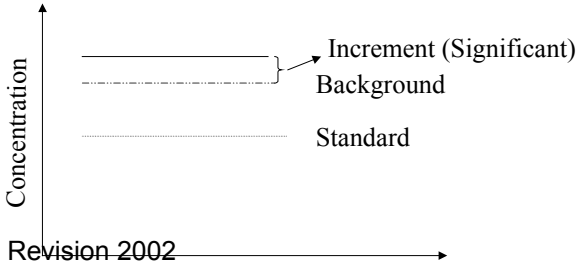
TABLE A-2
Most Stringent Ambient Air Quality Standard and
Allowable Change in Concentration
For Each Air Contaminant/Averaging Time Combination

Air Contaminant	Averaging Time	Most Stringent Air Quality Standard		Significant Change in Air Quality Concentration	
Nitrogen Dioxide	1-hour Annual	25 pphm 5.3 pphm	500 ug/m^3 100 ug/m^3	1 pphm 0.05 pphm	20 ug/m^3 1 ug/m^3
Carbon Monoxide	1-hour 8-hour	20 ppm 9.0 ppm	23 mg/m^3 10 mg/m^3	1 ppm 0.45 ppm	1.1 mg/m^3 0.50 mg/m^3
Suspended Particulate Matter - <10um (PM_{10})	24-hour Annual Geometric Mean	50 ug/m^3 30 ug/m^3			2.5 ug/m^3 1 ug/ m^3 1 ug/m^3
Sulfate	24-hour	25 ug/m^3			

Amendments to Rules 1303 and 2005 revised the modeling requirements for new or modifying facilities located in attainment subregions of the District to accommodate some level of growth in these subregions without adversely impacting air quality. Modeled increases from the new or modified source will be compared to the background air quality data and the applicable federal and state air quality standards. Background air quality is based on the location of concern, which would typically be the point of maximum ground level impact. It is that location and not the location of the source, which will be used to determine what the appropriate background air quality is.

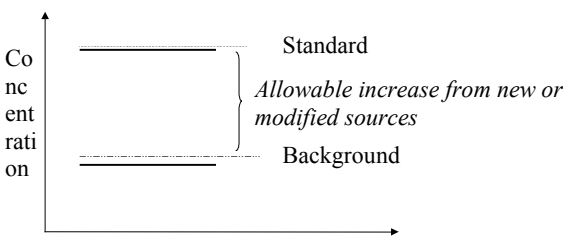
Once the location of concern has been identified, the monitoring zone that includes that location is determined. The District is divided into 37 monitoring zones as shown in Figure A. Ambient

**SUB-REGION NOT IN ATTAINMENT WITH THE AAQS*
(Proposed Amendment)**



* AAQS: Ambient Air Quality Standards

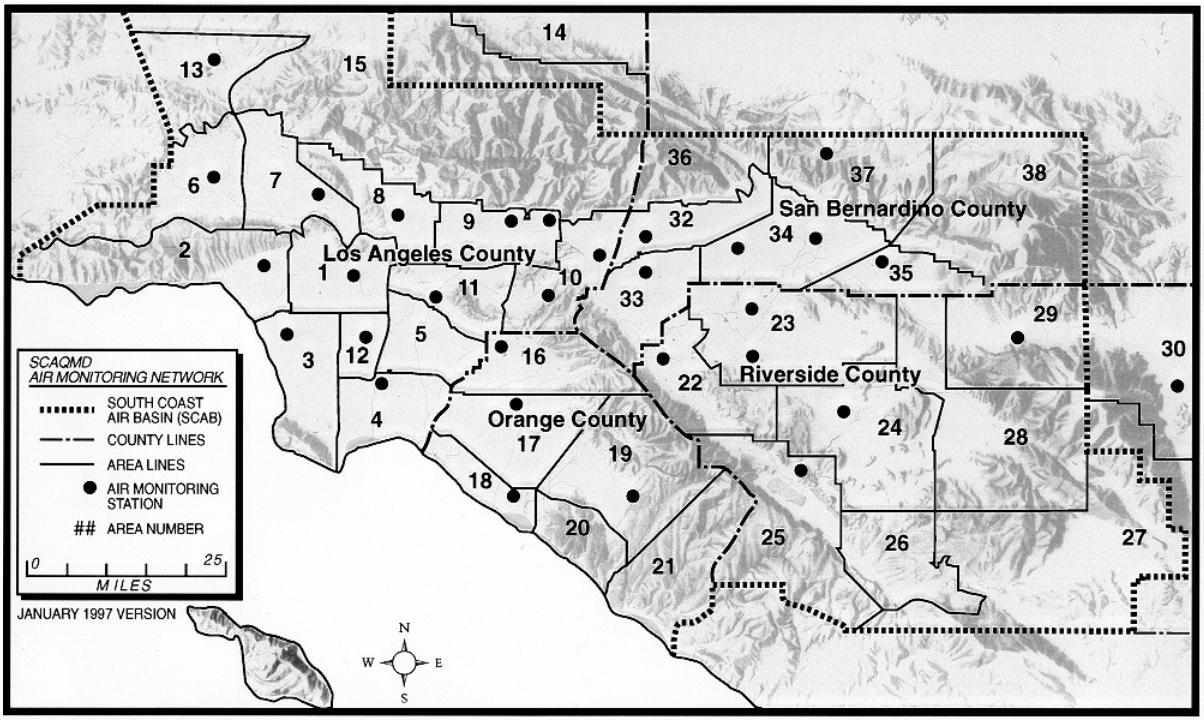
**SUB-REGION IN ATTAINMENT WITH THE AAQS*
(Proposed Amendment)**



* AAQS: Ambient Air Quality Standards

air quality data is obtained within that monitoring zone or in an adjacent zone that is representative of it. Background air quality is the highest reading for the pollutant of concern for the previous 3 years. An example of ambient air quality is given in Table 1. Table 1 gives ambient air quality data by monitoring zone (identified as Source/Receptor Area in the table) for calendar year 2000 and also the corresponding state and federal air quality standard.

A hypothetical helps illustrate this analysis. A combustion source is proposed to be located in monitoring zone (source/receptor area) 2. The maximum ground level impact also occurs in zone 2. The maximum 1-hour increase from the source for NO2 is 0.04 ppm. The highest ambient 1-hour NO2 concentration in monitoring zone 2 for past three years is 0.16 ppm. The modeled increase plus the background would be 0.04 + 0.16 = 0.20 ppm. This value is then compared to the appropriate state or federal standard. For NO2, the state has a 1-hour standard of 0.25 ppm. Since the modeled increase plus the background is less than this level, the source would meet the requirement for NO2. This analysis would have to be conducted for the other pollutants and the other averaging times.



South Coast Air Basin and Adjoining Areas of Salton Sea and Mojave Desert Air Basins and Monitoring Stations

2000 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2000

Source/Receptor Area No.	Location	Station No.	Carbon Monoxide: No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm 8-hour	No. Days Standard Exceeded a) Federal ≥ 9.5 ppm 8-hour	State > 9.0 ppm 8-hour	Ozone: No. Days of Data	Max. Conc. in ppm 1-hour	Max. Conc. in ppm 8-hour	Fourth High Conc. ppm 8-hour	No. Days Standard Exceeded Federal > 0.12 ppm 1-hour	Federal > 0.08 ppm 8-hour	State > 0.09 ppm 1-hour	Nitrogen Dioxide: No. Days of Data	Max. Conc. in ppm 1-hour	Average Compared to Federal Standard b) AAM in ppm	No. Days Standard Exceeded State > 0.25 ppm 1-hour	Sulfur Dioxide: No. Days of Data	Max. Conc. in ppm 1-hour c)	Max. Conc. in ppm 24-hour c)	Average Compared to Federal Standard d) AAM in ppm
Los Angeles County																						
1	Central LA	087	365	7	6.0	0	0	365	0.14	0.105	0.086	1	4	8	353	0.16	0.0404	0	305*	0.08*	0.010*	0.0009*
2	Northwest Coastal LA County	091	362	6	4.3	0	0	365	0.10	0.079	0.071	0	0	2	361	0.16	0.0273	0	--	--	--	--
3	Southwest Coastal LA County	094	365	9	7.0	0	0	359	0.10	0.075	0.065	0	0	1	364	0.13	0.0275	0	365	0.17	0.017	0.0017
4	South Coastal LA County	072	363	10	5.8	0	0	365	0.12	0.080	0.069	0	0	3	358	0.14	0.0313	0	365	0.05	0.014	0.0015
6	West San Fernando Valley	074	365	11	9.8	1	2	362	0.11	0.084	0.083	0	0	6	365	0.11	0.0285	0	--	--	--	--
7	East San Fernando Valley	069	365	8	6.1	0	0	363	0.15	0.119	0.098	3	11	16	365	0.17	0.0415	0	357	0.01	0.004	0.0001
8	West San Gabriel Valley	088	357	9	7.4	0	0	362	0.16	0.134	0.106	7	14	19	355	0.17	0.0296	0	--	--	--	--
9	East San Gabriel Valley 1	060	365	5	4.9	0	0	365	0.17	0.141	0.109	11	16	32	365	0.15	0.0366	0	--	--	--	--
9	East San Gabriel Valley 2	591	345	4	3.1	0	0	358	0.17	0.148	0.113	11	22	39	349	0.13	0.0290	0	--	--	--	--
10	Pomona/Wlalnut	075	360	7	4.9	0	0	363	0.15	0.124	0.089	3	5	18	358	0.14	0.0435	0	--	--	--	--
11	South San Gabriel Valley	085	365	7	5.3	0	0	365	0.14	0.114	0.086	2	4	11	365	0.14	0.0366	0	--	--	--	--
12	South Central LA County 1	084	365	13	10.0	2	6	365	0.09	0.064	0.051	0	0	0	360	0.14	0.0386	0	--	--	--	--
12	South Central LA County 2	801	222*	13*	9.5*	1*	3*	222*	0.12*	0.095*	0.085*	0*	4*	4*	221*	0.11*	0.0292*	0*		--	--	--
13	Santa Clarita Valley	089	345	6	4.9	0	0	360	0.13	0.111	0.099	1	16	31	360	0.10	0.0246	0	--	--	--	--
Orange County																						
16	North Orange County	3177	364	14	6.1	0	0	364	0.14	0.103	0.085	1	4	8	269*	0.12*	0.0304*	0*	--	--	--	--
17	Central Orange County	3176	360	8	6.8	0	0	364	0.13	0.101	0.075	1	1	9	364	0.13	0.0300	0	--	--	--	--
18	North Coastal Orange County	3195	339*	8*	6.3*	0*	0*	365	0.10	0.087	0.087	1	1	1	362	0.11	0.0205	0	363	0.02	0.008	0.0005
19	Saddleback Valley 1	3186	244*	5*	2.3*	0*	0*	244*	0.13*	0.110*	0.068*	1*	2*	3*	--	--	--	--	--	--	--	--
19	Saddleback Valley 2	3812	305*	4*	3.3*	0*	0*	305*	0.15*	0.129*	0.089*	2*	8*	25*	--	--	--	--	--	--	--	--
Riverside County																						
22	Norco/Corona	4155	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	365	5	4.3	0	0	365	0.14	0.113	0.106	3	29	41	298*	0.10*	0.0236*	0*	329*	0.11*	0.041*	0.0008*
23	Metropolitan Riverside County 2	4146	365	9	4.3	0	0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	Perris Valley	4149	--	--	--	--	--	361	0.16	0.126	0.113	15	41	65	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	351	4	2.0	0	0	361	0.13	0.109	0.099	1	31	45	360	0.08	0.0175	0	--	--	--	--
29	Banning Airport	4164	--	--	--	--	--	363	0.14	0.111	0.103	4	39	52	365	0.21	0.0237	0	--	--	--	--
30	Coachella Valley 1**	4137	353	3	1.6	0	0	355	0.12	0.105	0.096	0	33	40	337	0.07	0.0178	0	--	--	--	--
30	Coachella Valley 2**	4157	87*	3*	2.1*	0*	0*	354	0.11	0.096	0.089	0	9	43	87*	0.06*	0.0099*	0*	--	--	--	--
San Bernardino County																						
32	Northwest San Bernardino Valley	5175	348	4	2.6	0	0	365	0.18	0.159	0.118	10	19	43	357	0.15	0.0380	0	--	--	--	--
33	Southwest San Bernardino Valley	5817	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	--	--	--	--	--	365	0.17	0.139	0.101	7	16	36	365	0.12	0.0364	0	274*	0.02*	0.010*	0.0018*
34	Central San Bernardino Valley 2	5203	304*	5*	4.3*	0*	0*	365	0.15	0.125	0.111	7	27	48	365	0.10	0.0325	0	--	--	--	--
35	East San Bernardino Valley	5204	--	--	--	--	--	365	0.15	0.133	0.113	11	51	78	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	--	--	--	--	--	354	0.18	0.149	0.123	17	73	85	--	--	--	--	--	--	--	--
38	Eastl San Bernardino Mountains	5818	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
District Maximum				14	10.0	2	6		0.18	0.159	0.123	17	73	85		0.21	0.0435	0		0.17	0.041	0.0018

ppm - Parts Per Million parts of air, by volume. AAM = Annual Arithmetic Mean -- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
a) - The federal 1-hour standard (1-hour average CO > 35 ppm) and state 1-hour standard (1-hour average CO > 20 ppm) were not exceeded.
b) - The federal standard is annual arithmetic mean NO_2 greater than 0.0534 ppm. No location exceeded this standard.
c) - The state standards are 1-hour average > 0.25 ppm and 24-hour average > 0.045 ppm. No location exceeded state standards.
d) - The federal standard is annual arithmetic mean SO_2 > 0.03 ppm. No location exceeded this standard.
The other federal standards (3-hour average > 0.50 ppm, and 24-hour average > 0.14 ppm) were not exceeded either.

South Coast Air Quality Management District
21865 East Copley Drive
Diamond Bar, CA 91765-4182
http://www.aqmd.gov

The map showing the locations of source/receptor areas can be accessed via the Internet at http://www.aqmd.gov/smog/areamap.html. Locations of source/receptor areas are shown on the "South Coast Air Quality Management District Air Monitoring Areas" map available free of charge from SCAQMD Public Information.

2000 AIR QUALITY
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

2000

Source/Receptor Area No.	Location	Station No.	Suspended Particulates PM10 [e] No. Days of Data	Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standard Federal > 150 µg/m³ 24-hour	State > 50 µg/m³ 24-hour	Annual Averages [h] AAM Conc. µg/m³	AGM Conc. µg/m³	Suspended Particulates PM2.5 [f] No. Days of Data	Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standard Federal > 65 µg/m³ 24-hour	Annual Averages [i] AAM Conc. µg/m³	Particulates TSP [g] No. Days of Data	Max. Conc. in µg/m³ 24-hour	Annual Average AAM Conc. µg/m³	Lead [g] Max. Monthly Average Conc. [j] µg/m³	Max. Quarterly Average Conc. [j] µg/m³	Sulfate [g] Max. Conc. in µg/m³ 24-hour	No. (%) Samples Exceeding Standard State ≥ 25 µg/m³ 24-hour
Los Angeles County																			
1	Central LA	087	60	80	0	15(25)	40.0	37.0	334	87.8	11(3.3)	22.0	60	127	72.0	0.06	0.05	16.4	0
2	Northwest Coastal LA County	091	--	--	--	--	--	--	--	--	--	--	60	87	48.2	--	--	14.1	0
3	Southwest Coastal LA County	094	57	74	0	9(16)	36.1	33.4	--	--	--	--	61	127	64.8	0.08	0.05	16.2	0
4	South Coastal LA County	072	57	105	0	12(21)	37.6	34.0	304*	81.5*	4(1.3)*	19.2*	61	164	68.2	0.05	0.04	26.7	1
6	West San Fernando Valley	074	--	--	--	--	--	--	108	67.5	2(1.9)	18.1	--	--	--	--	--	--	--
7	East San Fernando Valley	069	60	74	0	14(23)	39.1	36.1	70*	84.4*	3(4.3)*	23.8*	--	--	--	--	--	--	--
8	West San Gabriel Valley	088	--	--	--	--	--	--	110	66.3	1(0.9)	19.3	60	91	49.1	--	--	13.9	0
9	East San Gabriel Valley 1	060	57	94	0	24(42)	46.3	42.5	333	92.5	5(1.5)	20.1	59	157	85.3	--	--	17.2	0
9	East San Gabriel Valley 2	591	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10	Pomona/Wlalnut	075	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
11	South San Gabriel Valley	085	--	--	--	--	--	--	116	89.5	4(3.4)	24.1	57	118	74.7	0.09	0.06	13.1	0
12	South Central LA County 1	084	--	--	--	--	--	--	121	82.1	2(1.7)	23.0	60	167	74.9	0.09	0.06	11.4	0
12	South Central LA County 2	801	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
13	Santa Clarita Valley	089	61	64	0	4(7)	32.7	29.8	--	--	--	--	--	--	--	--	--	--	--
Orange County																			
16	North Orange County	3177	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
17	Central Orange County	3176	61	126	0	8(13)	39.9	35.7	273*	113.9*	6(2.2)*	21.0*	--	--	--	--	--	--	--
18	North Coastal Orange County	3195	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley 1	3186	31*	60*	0*	1(3)*	28.9*	27.4*	--	--	--	--	--	--	--	--	--	--	--
19	Saddleback Valley 2	3812	60	98	0	2(3)	27.8	25.5	119	94.7	1(0.8)	14.7	--	--	--	--	--	--	--
Riverside County																			
22	Norco/Corona	4155	58	129	0	28(48)	49.3	43.4	--	--	--	--	--	--	--	--	--	--	--
23	Metropolitan Riverside County 1	4144	97	139	0	68(70)	60.1	54.7	304*	119.6*	11(3.6)*	28.2*	62	211	115.5	0.06	0.05	11.0	0
23	Metropolitan Riverside County 2	4146	--	--	--	--	--	--	111	79.3	5(4.5)	25.5	63	144	82.8	0.04	0.03	10.2	0
24	Perris Valley	4149	59	87	0	13(22)	41.1	36.8	--	--	--	--	--	--	--	--	--	--	--
25	Lake Elsinore	4158	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
29	Banning Airport	4164	59	69	0	5(8)	29.1	24.7	--	--	--	--	--	--	--	--	--	--	--
30	Coachella Valley 1**	4137	56	44	0	0	24.4	22.7	120	28.5	0	9.6	--	--	--	--	--	--	--
30	Coachella Valley 2**	4157	103[k]	114[k]	0[k]	52(50)[k]	51.9[k]	48.4[k]	115	28.6	0	11.2	--	--	--	--	--	--	--
San Bernardino County																			
32	Northwest San Bernardino Valley	5175	--	--	--	--	--	--	--	--	--	--	56	122	69.8	0.07	0.05	11.5	0
33	Southwest San Bernardino Valley	5817	58	124	0	26(45)	50.4	46.3	111	73.4	2(1.8)	24.2	--	--	--	--	--	--	--
34	Central San Bernardino Valley 1	5197	60	108	0	31(52)	52.6	47.1	111	72.9	2(1.8)	24.5	57	180	97.3	--	--	10.7	0
34	Central San Bernardino Valley 2	5203	60	108	0	32(53)	50.1	44.5	102*	89.8*	3(2.9)*	25.4*	59	168	95.4	0.06	0.05	12.4	0
35	East San Bernardino Valley	5204	61	109	0	27(44)	46.0	39.7	--	--	--	--	--	--	--	--	--	--	--
37	Central San Bernardino Mountains	5181	58	49	0	0	24.0	20.7	--	--	--	--	--	--	--	--	--	--	--
38	Eastl San Bernardino Mountains	5818	--	--	--	--	--	--	58	29.0	0	10.6	--	--	--	--	--	--	--
	District Maximum			139	0	68	60.1	54.7		119.6	11	28.2		211	115.5	0.09	0.06	26.7	1

µg/m³ - Micrograms per cubic meter of air. AAM - Annual Arithmetic Mean AGM - Annual Geometric Mean -- - Pollutant not monitored.

* - Less than 12 full months of data. May not be representative.

** - Salton Sea Air Basin.

e) - PM10 samples were collected every 6 days (every 3 days at Station Numbers 4144 and 4157) using the size-selective inlet high volume sampler with quartz filter media.

f) - PM2.5 federal standard was established effective September 16, 1997. PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.

g) - Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

h) - Federal PM10 standard is AAM > 50 $\mu g/m^3$; and state standard is AGM > 30 $\mu g/m^3$.

i) - Federal PM2.5 standard is AAM > 15 $\mu g/m^3$.

j) - Federal lead standard is quarterly average > 1.5 $\mu g/m^3$; and state standard is monthly average ≥ 1.5 $\mu g/m^3$. No location exceeded lead standards. Special monitoring immediately downwind of stationary sources of lead was carried out at four locations in 2000. The maximum monthly average concentration was 0.46 $\mu g/m^3$, and the maximum quarterly average concentration was 0.34 $\mu g/m^3$, both recorded in Area 5, Southeast Los Angeles County.

k) - The data for the samples collected on high-wind-days (190 $\mu g/m^3$ on 4/21/00, 201 $\mu g/m^3$ on 5/15/00 and 183 $\mu g/m^3$ on 9/21/00) were excluded in accordance with EPA's Natural Events Policy.

13-2.2.3 EMISSION OFFSETS - RULE 1303(B)(2)

One of the goals of Regulation XIII is to ensure that any emission increase of nonattainment air contaminant from the operation of any relocated source or from the operation of any new or modified source do not impede the progress of attaining NAAQS or SAAQS. To accomplish this goal, District Rule 1303(b)(2) gives the Executive Officer the authority to deny permits to construct for these permit sources unless BACT is employed, and the applicant provides emission offsets to mitigate any emission increase. An emission offset is that which is acquired either from emission reduction credits (ERCs), approved in accordance with Rule 1309 or from allocations from the Community Bank in accordance with Rule 1309.1 for permits subject to the October 1990 NSR. The December 1995 amendments replaced the Community Bank with a facility exemption level for sources. The term "emission reduction credits (ERC)" is defined in Rule 1302 as "the amount of emissions reduction, which is verified and determined to be eligible for credit at a facility in accordance with all AQMD rules and regulations. An ERC represents final eligible emission reductions and may be used as such, in accordance with the provisions of Regulation XIII." The applicant is required to:

(i) offset any emission increases; and

(ii) Comply with sensitive zone requirements.

Unless exempt from offset requirements pursuant to Rule 1304, emission increases must be offset either by ERCs or by allocations from the Priority Reserve. Offset ratios are 1.2 -to-1.0 for ERCs and 1.0-to-1.0 for allocations from the Priority Reserve, except for facilities located in SEDAB, where the offset ratio for ERCs is 1.2-to-1.0 for VOC, NOx, SOx, and PM10, and 1.0-to-1.0 for CO.

Unless credits are obtained from the Priority Reserve, facilities are subject to Sensitive Zone requirements specified in Health and Safety Code Section 40410.5. Regulation XIII designates 2 zones. A facility in zone 1 may obtain ERCs from either Zone 1 or Zone 2A or both. The purpose of this requirement is to prevent deterioration of the ambient air quality within the zone by requiring that emission offsets to be required in such a manner that improves the ambient air quality within the zone.

Any new major polluting facility or major modification at any existing major polluting facility shall comply with the following requirements:

- Conduct an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source and demonstrate that the benefits of the proposed project outweigh the environmental and social costs associated with that project.

- Demonstrate prior to the issuance of a Permit to Construct, that all major stationary sources as define in the jurisdiction where the facilities are located, that are owned or operated by such person (or by any entity controlling, controlled by, or under common control with such person) in the State of California are subject to emission limitations.

Requirements for alternative analysis can be met via CEQA, through exemptions, negative declarations or environmental impact reports.

13-2.3 EXEMPTIONS

Federal and state NSR requirements do not provide any exemptions from offset requirements. However, the AQMD's program includes several exemptions which are included in Rule 1304 and Rule 1309.1. The AQMD funds an offset equivalency program and has limited free offsets available for several categories, including small emitters, Essential Public Services, portable equipment, and increases in VOCs resulting from the transition away from ozone depleting compounds. Please refer to Rules 1304 and 1309.1 and Appendix A of this chapter for more information.

13-2.4 EMISSION CALCULATIONS

Potential to Emit

The CPP must determine what the "potential to emit" (PTE) for each emission source being applied for. The definition of "potential to emit" from Rule 1302 is:

POTENTIAL TO EMIT means the amount of pollutants calculated (1) using a calendar monthly average, and, (2) on a pound - per - day basis from

permit conditions which directly limit the emissions, or, when no such conditions are imposed, from:

(1) the maximum rated capacity; and

(2) the maximum daily bonus of operation; and

(3) the physical characteristics of the materials processed.

Monthly Average PTE

The PTE in pounds per day is the maximum possible hourly emission rate at 100% of rating times 24 hours per day, unless the applicant will accept a permit condition that limits emissions or throughput. For example, a 10 million Btu per hour natural gas-fired boiler would emit 0.36 lbs/hr of NOx at maximum rating (assuming 30 ppm NOx dry @ 3% O2). For 24 hours, it would be 8.6 lbs/day. However, a boiler operator would never operate it at this level for an entire month. Provided that the operator will accept a permit condition limiting the monthly fuel use, the PTE can be calculated based on the fuel use limit.

For example, based on a worst case expectation of 50% average load for a whole month, the potential PTE for the equipment would be only 0.5 x 8.6 lbs/day = 4.3 lbs/day. The boiler operator will have to monitor and record the monthly fuel use to document compliance. The AQMD uses an average month of 30 days, so the monthly fuel use limit would be:

$$\frac{50\%}{100\%} \quad \frac{(10 \times 10^6 \text{ Btu/hr})}{1050 \text{ Btu/CF}} \quad \frac{(24 \text{ hours})}{\text{day}} \quad \frac{(30 \text{ days})}{\text{month}} = 3.43 \times 10^6 \frac{\text{cubic feet}}{\text{month}}$$

Annual PTE

An important value is the annual PTE for a facility, because a facility with an annual PTE of less than 4 tons per year is exempt from emission offsets (except for CO = 29 tons per year).

The annual PTE for an emission source is the maximum hourly emission rate at 100% rating, times 24 hours/day and 365 days/year, unless there will be a monthly limit on emissions or throughput on the permit as previously discussed. If so, the annual PTE will be simply the monthly emission limit times twelve.

The CPP should specify in the permit application the monthly limits on throughput or emissions that the applicant will accept on the permit, and the daily and annual PTEs.

To assist the AQMD in determining the facility PTE and to speed the processing of the permit, it is recommended that the CPP review the existing AQMD permits at the facility and determine the annual PTE for each permit and the whole facility, including the new permit being applied for.

Emission Increases and Decreases

Emission increases from new sources and permit modifications are subject to BACT and, in some cases, to modeling and offsets. Therefore, it is important to determine if there is an emission increase or decrease, and the quantity of it.

For a new permit for a new source, the situation is simple. There is an emission increase from the source equal to the PTE previously discussed in pounds/day. Unless one of the Rule 1304 exemptions applies, PTE increase in pounds per day must be offset by a ratio of 1.2-to-1.0 (1.0-to-1.0 for Priority Reserve allocations).

The new source also requires BACT, unless the maximum emissions in any one day are less than 1.0 pounds.

Only equipment modifications that result in an emission increase are subject to NSR and potentially subject to BACT, modeling, and offsets. However, the emission change must be calculated in strict accordance with the procedure specified in Rule 1306 - Emission Calculations.

If the equipment was previously subject to the New Source Review (Rule 213 or Regulation XIII), then the emission change is the new PTE, as previously discussed, minus the pre-modification potential to emit. This might be determined by reviewing the current permit to operate, but in some cases, the previous PTE must be determined by reviewing the old application file or the AQMD NSR database. Note that the wording of 1306(b) and the same wording in the definition of “potential to emit” includes both a maximum one-day emission and a calendar-month average emission. The one you use will depend on the circumstances. The new potential to emit after the modification must be based upon the maximum calendar-month average as described in Section 3.4.1.1 if the

result of the modification is an emission increase, or if the previous permit was evaluated on a calendar-month emissions basis. However, for a modification resulting in an emission decrease or no change in a permit previously evaluated on a maximum one-day basis, the potential to emit must be based on the maximum one-day emission. This will prevent an applicant from changing a maximum one-day permit to a calendar-month maximum permit and getting an emission reduction without reducing maximum one-day emissions.

If the equipment was never previously subject to NSR, then the emission change is the new potential to emit in pounds/day minus the BACT-adjusted, 2-year average emissions as described in Rule 1306(c).

Emission Increases from New Equipment Requiring Offsets (Rules 1306(d)(1), 1306(b), and 1304 (d)(1))

Given: A company submits an application for a permit to construct an item of equipment which will emit a maximum of 900 lbs of VOC in any one calendar month.

Procedure: The daily PTE is 900 lbs/30 days = 30 lbs/day. The annual PTE is

$$\frac{(900\ \text{lbs})}{\text{day}} \quad \frac{(12\ \text{mos})}{\text{yr.}} \quad \frac{(1)}{2000\ \text{lbs./ton}} = 5.4\ \text{tons/yr.}$$

This is 4.0 tons per year or more, so the entire emission increase must be offset. The required amount of offsets is (1.2)(30 lbs/day) = 36 lbs/day.

Emission Increases from a Modified Source Requiring Offsets: Rules 1306(d)(2) and 1304(d)(2)

Given: A company submits an application for a permit to construct a modification to an item of equipment that was previously subject to New Source Review. The previous PTE was 600 lbs/month and 20 lbs/day. The new PTE is 1200 lbs/month. The equipment already has BACT.

Procedure: The new daily PE is 1200 lbs/mo / 30 days/mo = 40 lbs/day. The emission increase is 40 - 20 = 20 lbs/day. BACT is required, but the equipment already has it.

The new annual PTE is (1200 lbs/month) (12 months/year) (1 ton/2000 pounds) = 7.2 tons/year.

For a facility modification, only the amount over 4.0 tons/year must be offset, so

(7.2-4.0)(40 lbs)=17.8 lbs/day must be offset by 1.2x17.8 = 21.3 lbs/day of ERCs.

7.2 day

Appendix A provides additional information relative to implementation of Regulation XIII.

13-2.5 EMISSION REDUCTION CREDITS (RULE 1309)

Rule 1309 specifies requirements for ERC issuance, use, and transfer. This rule also includes provisions for mobile source ERCs, interpollutant, inter-Basin, and inter-District transfers.

13-2.6 PRIORITY RESERVE (RULE 1309.1)

Rule 1309.1 specifies the requirements for Priority Reserve access and operation.

References

1 California Air Resources Board, California Air Pollution Laws: Health and Safety Code, Section 40914(a).

2 Bromberg, P. J., Clean Air Act Handbook: How to Comply with the Clean Air Act, pp. 178.